# THE BUILDER

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## THE FUTURE OF TOWN PLANNING

OUR last issue included summaries of two important planning schemes; that for the remodelling of Edinburgh by Sir Patrick Abercrombie and Mr. D. W. Plumstead and the design for the expansion of Hemel Hempstead by Mr. G. A. Jellicoe. Both of these include many interesting features and display a very full consideration of the possibilities in each case, and it is not appropriate to review the proposals in detail at the present time, as the general position at the moment demands not so much an investigation of their obvious merits as one on the possibilities of their ultimate realisation in a material form.

During the last two or three years, as a reference to our columns will show, there have been submitted to the British public comprehensive schemes for the development of most of our more important cities, and a large proportion of these can claim to conform to the ideals of the town planner as to the steps desirable to make these centres of population efficient and dignified. When the end of the war seemed to be in sight, and even earlier than this, a spirit of optimism encouraged all whose minds were actively directed towards replanning to set to work with the objective of defining the best methods for this, and not only were the demands of the various towns taken in hand but also general schemes for the reorganisation of the country as a whole.

These efforts included not only the reports made under official auspices but also important voluntary contributions from the architects, engineers and other professional bodies. The general attitude was that once the war was over and done with we could divert a large proportion of the energy it had demanded to the needs for reconstruction, on lines not merely equal to what had been lost but with all the improvements that the studies of recent decades indicated as desirable. It is only comparatively recently that the impracticability of such a course has become obvious and that the future of our country, remodelled on ideal lines, still lies a long way ahead.

It is somewhat depressing to have to admit this to be the case; the circumstances must not, however, be allowed to discourage us from taking all the possible steps towards national renovation, though the form of our procedure towards this will demand measures somewhat different from those hitherto adopted. Measures of this type have in fact been anticipated already to some extent in the indication of stages by which certain schemes might proceed, but something a great deal more specific on these lines is required. In only a few of the existing schemes has a definite economic survey been included and at the present time such a survey is clearly of first importance in enabling a decision to be made as to what is practicable in relation to the ultimate plan.

These ultimate plans as at present devised could be qualified to be somewhat less drastic in the revision of routes and of services while still affording most of the advantages demanded; careful traffic regulation, including one-way movement, would be a gain to street transit and there are methods of separating pedestrian and vehicular traffic that have hitherto been neglected by the town planner. The method proposed by Le Corbusier of placing these on separate levels is probably too costly, but there are other expedients that deserve more attention than they have received, which the statistics of road accidents bring into the front rank of needed improvements.

The problem of safety for the pedestrian does not appear to have taken an adequate place in most of our town plans, which follow too closely the traditional pattern of roads and buildings. Of course, it is only in the laying out of new areas that any marked changes in these can be made, but elsewhere there are minor revisions in detail planning that would make for increased safety, were the possibilities carefully studied.

The economic examination for immediate action is a matter of first importance, and has to take a wide range of factors into consideration. It will influence decisions as to where new building or rebuilding can be permitted so that it may not interfere with future replanning. Then the re-establishment of "blitzed" areas must take a form that will fall in line with the future programme even though this cannot at the moment be fully developed. The distribution of population must to some extent be provisional, with conditions ameliorated by special transport facilities via road or rail, and possibly by air.

The revisions in the railway system recognised as desirable, especially in and around the larger cities, are hardly likely to be practicable for a while, but some minor changes would improve the utility of the services. For example, the Southern Railway has seven passenger terminals in London, but the places in the Southern Counties one can reach from them are still those available before the amalgamation of the four southern lines. Small variations outside the London area would afford a wider range of choice.

In general, while magnificent visions are held out to us for the cities of the future, it is to be feared that we must for a time be content with minor undertakings carefully adjusted to the financial possibilities, but considered with a view to their affording a contribution to the final schemes, which may follow to a greater or less extent the plans already before us as far as the experience of the intervening years justifies them as valid.

# NOTES AND NEWS

### Incentives: N.F.B.T.O. Accept Principle.

By a majority vote of 80,000 the constituent members of the National Federation of Building Trades Operatives have decided to accept the principle of a scheme of payment by results, together with 3d. an hour wages increase. Alone of the constituent bodies the Amalgamated Society of Woodworkers, by a majority vote, decided against the scheme.

The operatives' decision has been reported to the National Federation of Building Trades Employers for their discussion and acceptance. The onus would be on the employers to prepare a scheme of incentives.

### District Heating in the City.

The Common Council of the City of London were to consider yesterday (October 16) the possibility of incorporating in the plans for the reconstructed City a system of district heating provided by suitably situated generating stations for all central heating and domestic hot water to premises in the rebuilt areas. The conclusions in the report of Mr. S. B. Donkin, prepared for the Improvements and Town Planning Committee, are that a system of district heating for the rebuilt areas should be provided by means of the heat-electric system, subject to its being economically adapted during the period of reconstruction.

It has not been possible to find a site for a fuel-burning generating station inside the City area, and it is proposed that one or more stations shall be situated outside on sites of existing or discarded electricity stations from which heat could be transmitted to sub-stations within the City by underground pipes. A generating station on the south bank of the Thames is proposed, if permission is obtained.

### Stevenage New Town Architect.

Mr. Clifford Holliday, M.Arch. (Liverpool), M.T.P.I., is appointed chief architect to the Stevenage Development Corporation.

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THE ADORATION OF THE WISE MEN. Cartoons for Stained Glass Windows exhibited by Mr. Gordon MacWhirter Webster. (See note.)

### R.I.B.A. Inaugural Address.

The inaugural meeting of the R.I.B.A. session 1947-48 will be held on Tuesday, November 11, next, at 6 p.m., when the President, Sir Lancelot Keay, K.B.E., will give his inaugural address, and will afterwards present the London Architecture Bronze Medal to Messrs. Farquharson and McMorran for their building, the Blackheath-road Police Section House. Tea will be served from 5.15 till 5.30.

### Exhibition of Architects' Working Drawings.

An exhibition of architects' working drawings will be held at the R.I.B.A. from Wednesday, October 22, to Thursday, October 30, inclusive. The exhibition will be open daily between the hours of 10 a.m. and 7 p.m. (Saturday 10 a.m. to 5 p.m.). It will include drawings lent by Sir Patrick Abercrombie, Mr. Richard Nickson, Mr. E. Maxwell Fry and Mr. R. H. Matthew.

The exhibition will contain drawings that a practising architect hands to a contractor, and some very comprehensive sets will be shown.

A Students' Evening will be held at the exhibition on Wednesday, October 29, at 6.30 p.m. It is hoped that the architects who have lent drawings, or their representatives, will be present in order to explain the drawings to the students. No cards of admission are required.

### To Open Building Exhibition.

The Minister of Works, Mr. Charles W. Key, M.P., is to open the 21st biennial Building Exhibition at Olympia, London, at 3 p.m. on Wednesday, November 19. The Exhibition remains open until Thursday, December 4.

Sir Lancelot Keay, P.R.I.B.A., Chairman of the Exhibition, will take the chair. Sir Giles Gilbert Scott, O.M., R.A., will propose a vote of thanks.

Already great interest in the Exhibition has been expressed from overseas, countries interested including Denmark, Sweden, Norway, Switzerland, Portugal, Brazil, France, U.S.A., Australia, New Zealand and East Africa.

### Ecclesiastical Stained Glass.

Mr. Gordon Macwhirter Webster, the Glasgow artist, has recently held an exhibition of stained glass at the Walker Gallery, W. On view are four stained glass windows, three of which are a portrayal of the Revelation to S. John, and the other a scene of the three Marys at the foot of the Cross. The windows are treated in the modern style, with glass and lead used to emphasise the flowing nature of the designs. The colouring is clear and brilliant, which will allow the maximum of light in the church. The artist is to be congratulated on the brilliancy and clarity of his colours and his craftsmanship for these commissioned works. Also on view are full-sized drawings of completed windows which include treatments of allegorical subjects—the Nativity, the calling of Christ's disciples, the parable of the Wise Virgins and others. Illustrated on this page are the windows in the High Church, Beith, Ayrshire—the subject being the Adoration of the Wise Men.

### On Clocks.

A craft, and a very charming craft, which has been cancelled out pretty completely by the machine age and the increase in population, is individual clock-making. The modern system, with its methods of mass production, standardisation and machine processes, does what is demanded of it, but it is quite permissible to feel, as so many people do feel, that

**RECONDITIONED CITY BUILDING. Seen above is a view of Market Buildings, Mincing-lane, the first block of City offices to be reconstructed after war damage. The building was designed by Messrs. Henry Tanner, FF.R.I.B.A. (See note.)**

here is—or was—a craft of genius which is now fast running down.

These thoughts came to us as we were reading a very charming new King Penguin, "A History of English Clocks," by R. W. Symonds. The survey is limited by its preoccupation with English clocks only, as much of the best work has been done by the French and Germans, but even so, the History of English Clocks is a fascinating story, from the Dover Castle clock, a pretty gim-crack affair (now in the Science Museum) to the fine work of Benjamin Vulliamy, whose early 19th-century clocks had a charming simplicity of design. Between these two times an extraordinary diverse range of work is covered, and the mechanical improvements are traced up to the early 19th century, when fine clock-making reached its zenith.

For our own part we would wish, when our new towns are designed, that thought be given to the designing of architecture for clocks. One of the most charming features of the Continental scene is the clock tower, whether belonging to church, town hall or school, and these clocks were frequently invested with a set of chimes of very high quality. The Germans were perhaps foremost in the field of clock technique, and frequently invented the most ingenious forms of entertainment connected with the chiming of the clock. Chiming was usually set to the music of one of the masters; Mozart has always been a great favourite in this respect, and many a church in Germany and Austria still chimes that lovely little piece of his about the passing of time, which was also used with such effect in the film "The Blue Angel."

The clockmaker's craft may be passing, but we still have the opportunity to use the clock as the attractive decorative feature it surely is; a few dots on the wall may satisfy some, but deep down most people know that the passing of time is a matter to be recorded with rather more respect and display. However, get hold of a copy of "The History of English Clocks"; it is delightfully produced and worth all of the half-crown charged for it.

### First City Reconstruction.

FIRST large office building in the City of London to be reconstructed after the war is Market Buildings, in Mincing-lane, set on fire by incendiary bombs on May 10, 1941. Despite the intense heat of the fire, in which plate glass windows melted and hung in festoons down the brick walls, and the reinforcing bars in the floors expanded to such an extent that the floor concrete disintegrated, the main structure and staircases remained intact.

Reinstatement was started in September, 1946, and by September this year the building was completely re-serviced, and is now fully let to 38 separate firms, originally in offices in the area.

To mark the occasion, the Lord Mayor, SIR BRACEWELL SMITH, visited Market Buildings on October 10, and later attended a luncheon at the Tallow Chandlers' Hall, in Dowgate Hill, where he congratulated the City of London Real Property Co., Ltd., the owners, on the speed with which the building had been made ready for use again. A warm tribute was paid by Mr. Edmund Howard, chairman of the company, to Mr. W. G. Sargant, of Morden, the general foreman for Holloway Bros. (London), Ltd., who carried out the rebuilding work. The work of redesigning the interior of Market Buildings was carried out by the staff architects of the City of London Real Property Co.

## COMING EVENTS

**Wednesday, October 22.**

ROYAL INSTITUTE OF BRITISH ARCHITECTS. Exhibition of Architects' Working Drawings. 66, Portland-place, W.1. (Continuing until October 30).

**Thursday, October 23.**

TOWN AND COUNTRY PLANNING ASSOCIATION. Mr. Charles Madge on "The Social Growth of a New Town." 28, King-street, W.C.2. 1.15 p.m.

HOUSING CENTRE. Visit to Tabard Gardens L.C.C. Estate, Hankey-place, S.E.1. Meet Superintendent's House, 2.30 p.m.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. Lectures on Post-War School Planning and Construction Lectures. Mr. Denis Clarke Hall, F.R.I.B.A., on "Secondary Schools." 11 a.m. "Nursery, Infant and Junior Schools," by Mr. John Harrison, A.R.I.B.A. 2.30 p.m. R.I.B.A., 66, Portland-place, W.1.

**Friday, October 24.**

ROYAL INSTITUTE OF BRITISH ARCHITECTS. Post-War School Planning and Construction Lectures. "Standard and Quality of Lighting." by Mr. William Allen, B.Arch., A.R.I.B.A. 10 a.m. Mr. C. C. Handisyde, A.A. Dipl., A.R.I.B.A., on "Heating and Ventilation." 11.30 a.m. Mr. Hope Bagenal, D.C.M., F.R.I.B.A., on "Acoustics." 2.30 p.m. Mr. Robert Fitzmaurice, B.Sc., A.M.Inst.C.E., on "Uses of Materials." 4 p.m. R.I.B.A., 66, Portland-place, London, W.1.

INSTITUTE OF REGISTERED ARCHITECTS. Annual Dinner and Dance. Guest of honour: Rt. Hon. Lewis Silkin, Minister of Town and Country Planning. Park Lane Hotel. Reception: 6.30 p.m.

**Saturday, October 25.**

THE INSTITUTE OF QUANTITY SURVEYORS (MIDLAND BRANCH). Meeting at White Horse Hotel, Congreve-street, Birmingham. Discussion on "Bonusing and Incentives." 3 p.m.

### Westminster War Memorial.

WITH the approval of the City Council, the Mayor of Westminster (the Hon. Greville Howard) has opened a fund for a memorial to the men and women of Westminster who perished in the war. It is impossible (he writes) yet to consider any memorial requiring the use of building labour or materials, but without prejudice to any larger scheme later the Dean and Chapter have approved of the window (shattered during the war) of St. Benedict's Chapel in the south transept of the Abbey being filled with stained glass. A design has been obtained from Mr. Hugh Easton. The cost will not exceed £2,500. Their Majesties the King and Queen have graciously subscribed to the fund, to which Mr. Howard now invites donations.

### Rebuilding in the Bombed Towns.

REPRESENTATIVES of 40 bombed towns are to meet Mr. Silkin, Minister of Town and Country Planning, at a series of two-day conferences at the Ministry. They are to discuss problems of reconstruction, the plans of the Ministry, and the question of compulsory purchase of sites and property. The first conference will begin on October 23, and will be attended by representatives of Bath, Bristol, Exeter, Plymouth, Tynemouth, Weston-super-Mare, Swansea, Birmingham, Coventry and Nuneaton.

### R.I.C.S. Junior Q.S. Members.

A MEETING of Junior Quantity Surveyor Members of the Royal Institution of Chartered Surveyors will be held at 64, London Wall, at 6.30 p.m. on Thursday, October 23. Lt.-Col. H. A. Ackland, F.R.I.C.S., will speak on "Pitfalls for the Junior Quantity Surveyor." Admission is by ticket only.

### A History of House Design.

THE latest Housing Centre Poster Exhibition will be on view at the Housing Centre, 13, Suffolk-street, S.W.1, from October 20 to November 1. The Exhibition provides a rapid survey of the developments in the architecture of the Englishman's home from the early primitive huts to the modern "prefab." The mediæval castle and the post-Renaissance mansion illustrate the highest achievements of their period, while progress in housing reform is traced through the drawings and photographs of industrial housing. The illustrations are mainly photographs and plans, and some drawings add colour and interest.

### Housing at Greenwich.

THE quantity surveyor for the flats on the Cherry Orchard Estate, Charlton, for the Metropolitan Borough of Greenwich, illustrated in our issue of October 3, was Mr. George F. K. White, F.R.I.C.S., of 58, Victoria-street, S.W.1.

## From *The Builder* of 1847

*Saturday, October 16, 1847*

CORNISH MARBLES FOR DECORATION.—We are glad to learn from Cornwall that Prince Albert, having been led to examine the beautiful stones of that county, when his royal highness visited it last year, afterwards gave directions for various pedestals and dies for busts and statues to be made for the residence at Osborne, which, by the way, is fast increasing in size, and will ultimately form a large pile of building. . . . By thus directing attention to our own mineral productions for decorative purposes, the prince is conferring a benefit on the industry of the country.

# COMPETITION NEWS

## T.U.C. Memorial Building, Bloomsbury.

THE General Council of the Trades Union Congress invite architects of British nationality, or architects resident in this country, to submit designs in competition for the T.U.C. Memorial Building, proposed on a site in Great Russell-street, Bloomsbury, London, W.C.1. Sir Percy Thomas, P.-P.R.I.B.A., of 10, Cathedral-road, Cardiff, has been appointed assessor and premiums offered are :—

| | £ |
|---|---|
| To author of 1st design... ... | 2,000 |
| To author of 2nd design... ... | 1,000 |
| To author of 3rd design... ... | 500 |

Copies of the conditions and site plan may be obtained, on deposit of £2 2s., from Mr. Vincent Tewson, C.B.E., M.C., General Secretary, Transport House, Smith-square, S.W.1, to whom designs are to be sent by May 31, 1948. Any questions must be addressed to Sir Percy Thomas before December 1 next.

The site is in Great Russell-street, Bloomsbury, bounded on other sides by Bainbridge-street and Dyott-street. A quantity surveyor, consultant structural engineer and a consultant heating, ventilating and electrical engineer will be appointed and paid by the promoters, whose intention it is to proceed with the scheme so soon as a building licence can be obtained. All designs submitted will be exhibited after the award is made. A heating chamber is already in existence on the south side of Bainbridge-street. The frontage to Great Russell-street (see site plan reproduced) must be set back 16 ft. Town planning requirements ask for site cover 90 per cent. up to 40 ft. from pavement and 75 per cent. from 40 up to 80 ft., which is the limit of height. Estimates should be based upon estimated cost of a similar building carried out immediately before the war, plus an additional 110 per cent.

Other points from the conditions are :—

The building is to provide accommodation for (*a*) the Trades Union Congress and (*b*) offices for the Labour Party. Accommodation must also be provided for (*c*) the Trades Union Training College. Competitors are at liberty to suggest the best method of arranging the internal division of the three elements referred to, either vertically or horizontally, but the following factors should be borne in mind :—

(1) It is desired to have one main entrance to all parts of the building, and this entrance-hall should have a fine architectural treatment, as it will, in fact, be the War Memorial Hall.

(2) Council chambers and committee rooms of both T.U.C. and Labour Party should be convenient of access from the entrance-hall.

(3) The large conference hall should have separate access from the street as well as from the main building.

Schedule of accommodation shows (*a*) *Trades Union Congress.* This requires a Conference Hall for not less than 500 persons with retiring rooms and platform (space for seating should be 4 ft. by 2 ft. per person). In addition, a library (joint for T.U.C. and L.P.), council chamber suite (2,000 sq. ft.), four committee rooms, general secretary's suite (1,010 sq. ft.), 16 other suites and various ancillary accommodation, totalling (conference hall excluded) 26,210 sq. ft.

(*b*) *Labour Party Offices.* 23,000 sq. ft. of accommodation is required here, including for a secretariat (1,550 sq. ft.), for a chief woman officer (810 sq. ft.) and 2,180 sq. ft. for research.

(*c*) *T.U.C. Training College.* 7,100 sq. ft. are required here, including a lecture room for 70 persons (800 sq. ft.), four seminar rooms (320 sq. ft. each); library (1,440 sq. ft.); and public reading room (1,000 sq. ft.).

Accommodation should be provided in the basement for about 50 cars, approached by ramps.

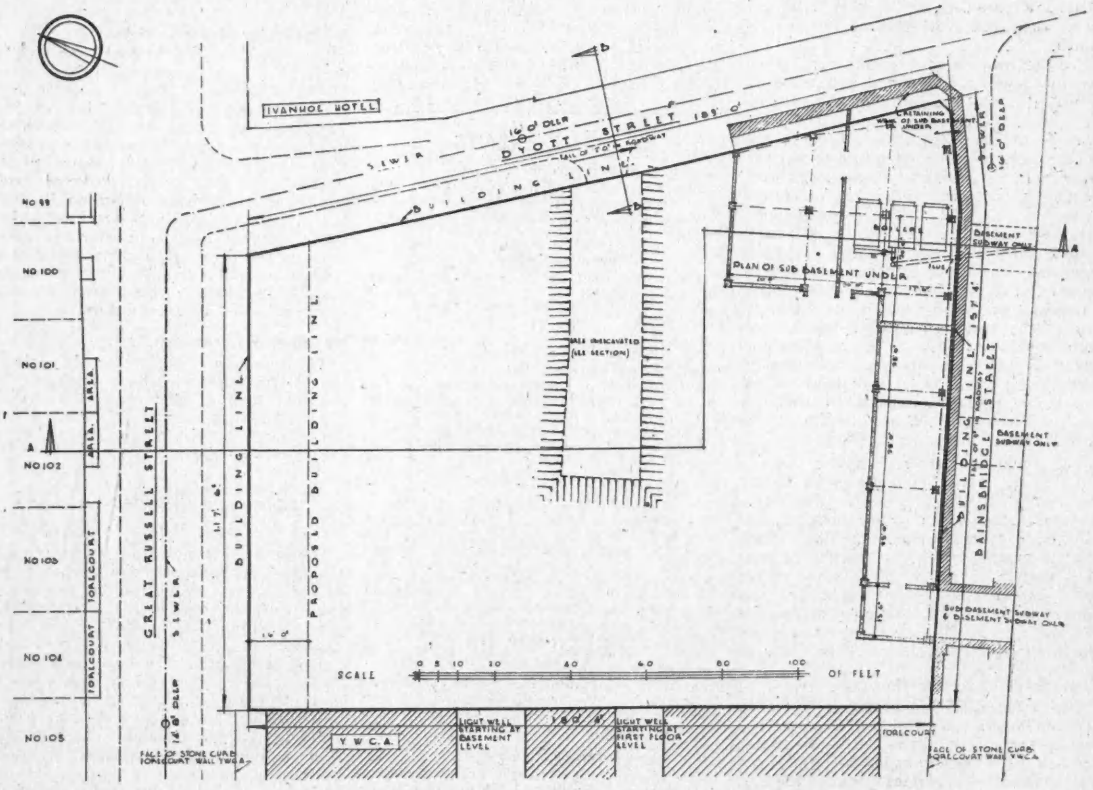
# LIVERPOOL TOWN HALL

THOSE who recall Mr. Gordon Hemm's well-known drawings of Liverpool Cathedral will welcome his latest publication* describing in words and pictures the Liverpool Town Hall. Originally planned by John Wood, the architect, as an Exchange, Liverpool Town Hall was opened in 1754, the year of Wood's death. After various additions made under the supervision of James Wyatt, the London architect, the interior of the building was destroyed by fire in 1795. This gave Wyatt an opportunity to design a fine suite of reception rooms, described later by King Edward VII as "the finest suite of rooms in England."

Mr. Hemm does full justice to the magnificent splendour of these rooms in his book, which also includes several excellent detail sketches of notable features of the building.

After reading the book we cannot help but agree with Mr. Hemm, when he concludes : "In this age of architectural austerity, it is a revelation to peep into this sanctuary of hidden beauty and to gaze on this exposition of superb ornamentation, set against backgrounds of equally masterly proportions. Liverpool is fortunate to possess such a treasure house."

* "The Liverpool Town Hall," by Gordon Hemm. Published by Sharpe and Kellet, Ltd., 18, Hackins Hey, Liverpool, price 3s.




T.U.C. Memorial Building Competition : The Site Plan.

# BRITISH COLONIAL ARCHITECTURE

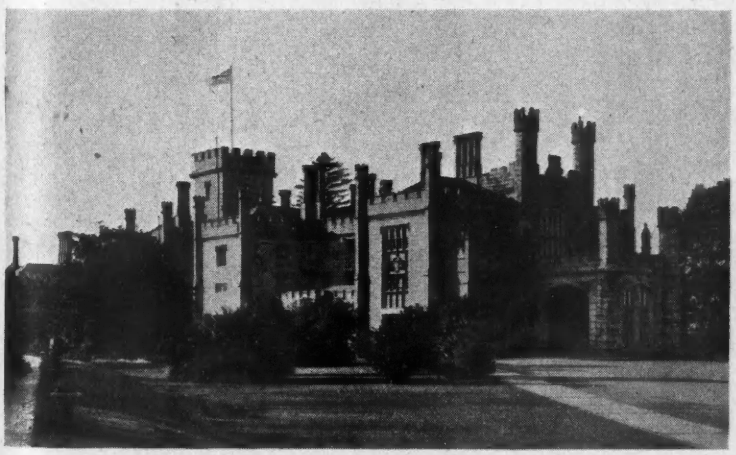
## 8.—AUSTRALIA

By MARTIN S. BRIGGS, F.R.I.B.A.

THE continent, island and British Dominion which we now call Australia was known by that name for many years before it was explored; in fact, it was indicated as a large island, "Terra Australis" (the Southern Land), on a map of the early 15th century. Then for a period it was known as "New Holland" by the Dutch, who forestalled us there as in South Africa, India, Ceylon, and "New Amsterdam" (afterwards New York). Not until 1788 did the first British colonists arrive, and the manner of their coming was unusual, but something must first be said of earlier happenings. The northern and western coasts were explored by Dutch navigators in 1616-29; then, in 1642, Abel Tasman, sailing from Batavia, the headquarters of the Dutch East India Company, discovered and annexed the island which is now named Tasmania after him, but which he christened "Van Diemen's Land," in honour of his official chief of that name. The first British navigator to reach Australia was William Dampier, in the late years of the 17th century, who explored a large part of the eastern coast, and then in 1769-70 came Captain Cook from Whitby in Yorkshire, sent out at the expense of the newly formed Royal Society in charge of a scientific mission to observe the transit of Venus. The story of his famous voyages through the South Seas needs no description here, and he established no settlements, but the published results of his travels had an unexpected effect which is of direct importance to my subject and is curiously connected with events in our American colonies.

1. Sydney : Parliament House, 1811-16.

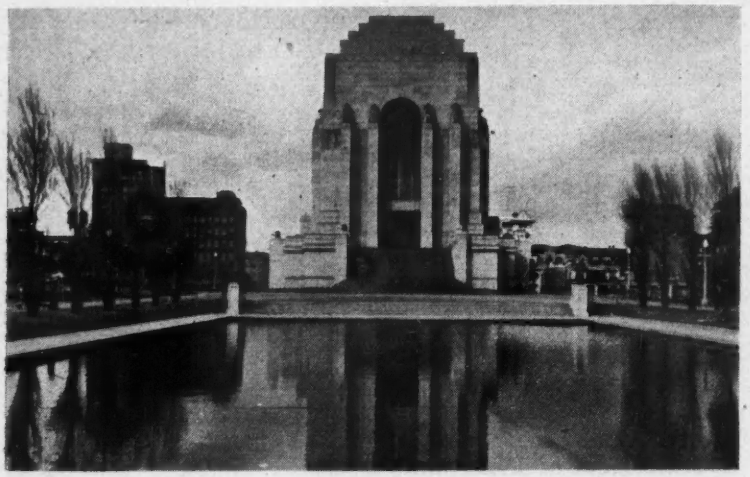
2. Sydney : St. Andrew's Cathedral (1819-68) and Town Hall (1868-74).



3. Sydney : Government House (c. 1837).

When the British lost those colonies in 1783 (see Article 1), it became necessary for the Government to find some fresh settlement overseas where convicts could be transported a safe distance from the homeland. That was the sole reason for our venture in Australia. Sir Joseph Banks, who had travelled with Cook on his first voyage, recommended Pitt to select Botany Bay on the east coast as a suitable location; and his advice was followed in spite of protests on humanitarian grounds by Burke, Howard and Bentham. He argued that there would be no opposition from the aboriginal inhabitants and no trouble from wild beasts, that the climate was good, and that there was an abundance of timber and fuel—all very cogent reasons. So in 1787 an expedition set out under Captain Phillip, R.N., and reached Botany Bay on January 18, 1788. The Governor immediately landed to examine the site, but quickly decided that it was unsuitable; so he despatched a small party at once to examine Port Jackson, to the northward, marked on Cook's map but never entered by that intrepid mariner. When Phillip entered the inlet (Sydney Harbour) on January 21 he described it as "the finest in the world, in which a thousand sail of the line may ride in the most perfect security." One of its various coves he named after Lord Sydney; and so began the first British colony in Australia.

On January 26 the whole party of 717 convicts, including 188 women and guarded by 191 marines under 18 officers, disembarked and immediately commenced their task of clearing a space in the wild woodland which ran down to the water's edge. Most of us are familiar with the name of Botany Bay, and many of us doubtless cherish the illusion that the first British settlers in Australia were a gang of brutal and hardened criminals. Some of them certainly were, but it is reliably estimated that four-fifths of the "crimes" for which men and women were transported in the elegant 18th century were relatively slight misdemeanours, such as pilfering, poaching or attempting to form an agricultural trades-union. Really serious crimes were punished by hanging in those days. Thus the bulk of the settlers were not much worse, morally, than their gaolers, and

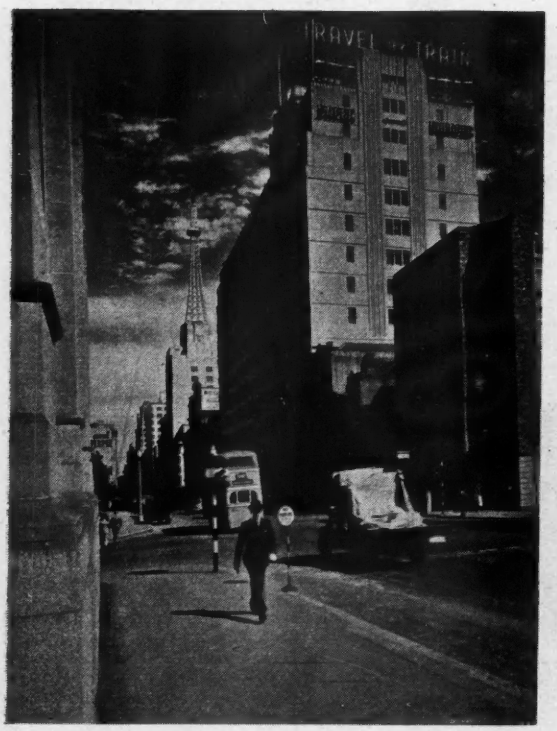


4. Sydney : Shrine of Remembrance.

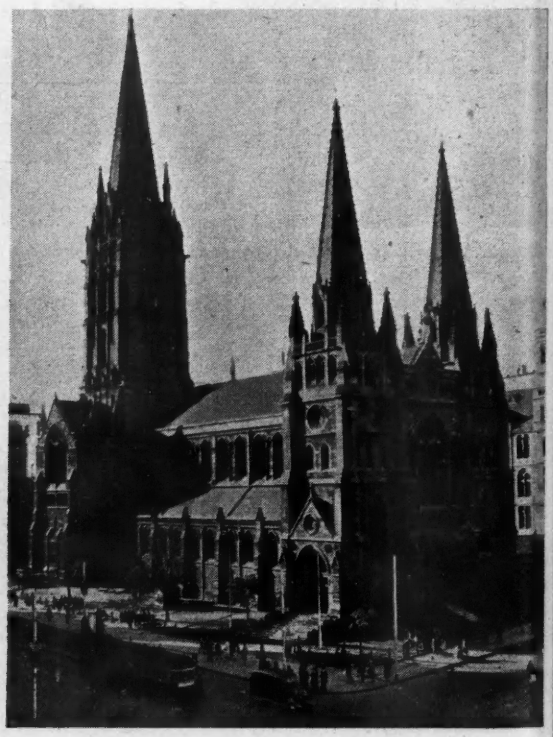
many were quite worthy people. Moreover, some of them suffered a sea-change, such as the premier London pickpocket who lived to become chief constable of Parramatta and died in all the odour of respectability. Compared with the "Pilgrim Fathers," they were doubtless of an inferior moral standard, and physically they were far inferior, for whereas the "Pilgrim Fathers"—men, women and children—were handpicked for fitness, the convicts of 1788 were certainly not. From our point of view, it is notable that in neither expedition was there any deliberate inclusion of men competent to erect buildings in the new country. The worst aspect of this Botany Bay "taint" is that nowadays Australians are said to glory in proving a convict ancestry, just as the aristocracy of New England consist of "The Society of Mayflower Descendants." In Australia, convict ancestry corresponds to our "Norman blood," they say; more probably, the notably democratic outlook of the Commonwealth to-day may be ascribed to hereditary resentment against English oppression of the 18th century.

Whatever may be the truth of these speculations, the facts of the early days of Sydney are fairly well known. Quoting from one of the first historians (1798) of the colony: "Various parties were variously employed; few were seen but most heard; some clearing ground, some pitching tents, others bringing up stores; in short, confusion was the order of the day, but as the woods were felled and ground cleared, the encampments gradually extended, the whole bore something like form." At the outset, the Governor occupied a small portable "canvas house," neither windproof nor weatherproof, but within a few weeks a stone dwelling was erected for him and some brick huts for the settlers, a bricklayer having been discovered among the convicts. There was an abundance of excellent building stone in the vicinity, fine in colour and easily worked, also clay suitable for brickmaking. A writer in 1793 observed that "a few hundred hovels of brick and mud" were rapidly "giving place to solid buildings for governmental purposes," and in 1803 Flinders wrote that "houses of brick and stone are taking the place of wood and plaster both at Sydney and Parramatta." About the same time, Governor King said that "the inhabitants have shown a spirit to second my wishes respecting the regulating and forming the streets, which, with our increasing durable buildings, public and private, is a proof how far the individual's gains have been applied to making themselves more comfortable." By 1800 the white population had risen to 5,000 or 6,000. Outside Sydney itself, agricultural development was slowly expanding, and in 1802 Governor King offered prizes for the best farm buildings. Coal was discovered not far away, and was exported to South Africa and India before 1801.

It was under Governor Macquarie (1810-21) that Australian building first came to merit the name of architecture; and the Governor's architect was Francis Greenway, about whom I have failed to find any information. Writing in 1819, the Rev. Sydney Smith, who was noted for his acid and witty pen, complained that the Governor was making too much display of architecture, "forgetting that the real Palladio for Botany Bay in its present circumstances is he who keeps out the sun, wind and rain with the smallest quantity of bricks and mortar." This charac-



5. Sydney : York-street.



6. Melbourne : St. Paul's Cathedral (1880-91 : spires 1932).

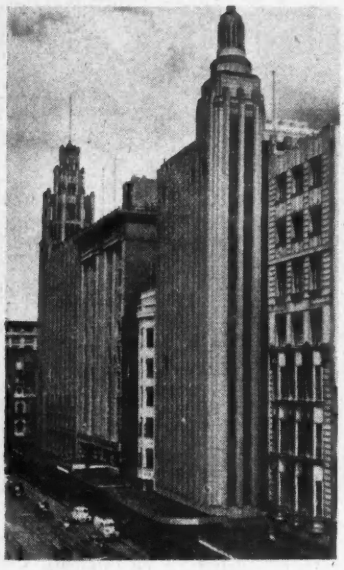
7. Melbourne: Temperance and General Mutual Life Society Building, and the Scots Church.

8. Melbourne : Shrine of Remembrance, 1927-33.

teristic reproof was quite undeserved : the architecture in question is of stark classical severity, and its reticence is most welcome. The stone used for most of the buildings affords a contrast to the timber buildings of the early colonists in New England and to the brick houses of Virginia. The oldest surviving building in Australia is said to be the Commissariat Stores on Circular Quay, erected by convict labour in 1810 : a very plain structure with a hipped roof. In Macquarie-street is a notable group (1811-16) comprising the Houses of Parliament (Fig. 1) and Mint, with colonnaded verandahs, and the Treasury. St. James's Church in King-street and the Law Courts (1817, formerly Barracks) in Hyde Park are both severe classic designs by Greenway, to whom is also attributed the charming Burdekin House (1817) in Macquarie-street. The present Conservatorium of Music was erected by Governor Macquarie in 1818 as stables for Government House at an estimated cost of £30,000. The Macquarie Lighthouse on South Head (1818) is another most attractive design.

Sydney had thus become a civilised town when John Batman from Tasmania landed in 1835 at a certain spot now marked by a stone in the centre of modern Melbourne and announced : "This will be the place for a village." He and a colleague had purchased 600,000 acres from the blacks on very advantageous terms. A year later the European population had grown to 142 males and 35 females, the village comprising thirteen buildings or huts in all, of which two were weatherboarded, two constructed of slabs, and eight of turf. Government officials had now arrived, and it was given its name of "Melbourne," after the famous statesman, in 1832. In

9. Melbourne : Royal Melbourne Hospital, 1942.



10. Melbourne : Swanston-street.

1839 a simple combined church and school of wood was erected by the Church of England and replaced by a stone building in 1842. Meanwhile the Congregationalists had completed the first permanent church in Melbourne (1841), and the Roman Catholics, who had celebrated their first Mass in 1839 with an Irish emigrant's trunk as altar, finished a wooden chapel in 1841 and a stone church in 1842.

The growth of land values in Melbourne has been astounding. Two examples may be cited. The first surveyor operating in the new township invested his first fees, £56, in the purchase of a central lot, which he lived to sell for £250,000 forty-four years later. Another lot, of half an acre, on Collins-street, was bought for £45 in 1837; and two-fifths of it realised £343,000 in 1928. (If you do a rapid sum you will see that the increase is twenty-thousand-fold.) The frontage to Collins-street in 1928 was worth £5,360 a foot, and would now presumably realise far more. The population increased with tremendous rapidity—6,000 in 1839, 24,000 in 1842, and in 1851 the colony of Victoria was separated from New South Wales. In that year also, gold was discovered, and a feverish rush of adventurers from all over the world began.

By the end of the century Greater Sydney and Greater Melbourne both approached half a million in population; at the present time both have passed the million mark, and Greater Sydney now leads with over 1,300,000 inhabitants at the close of 1941. The rivalry between the two cities is even more intense than that between Liverpool and Manchester or between Leeds and Bradford.

I realised it when, for a week early in 1916, I was the guest of an Anzac medical mess near the Suez Canal. Half the officers hailed from Sydney, half from Melbourne, and each section boasted of the size, beauty and wealth of their respective cities, only joining forces to crush the quartermaster, if he opened his mouth, as he came from New Zealand.

In its magnificent harbour, in its primacy as a colony, and—more recently—in its wonderful bridge (1926-32), Sydney certainly has much to show; but Melbourne is also a very fine city with broad streets, and has many merits. Twelve-storey buildings abound in both places, but skyscrapers are prohibited.

From the first days when Australia began to produce buildings of any architectural pretensions the style of the Classic or Gothic Revivals was naturally adopted. Sydney was first in the field, and St. Andrew's (Anglican) Cathedral was actually started in 1819, though very little progress was made for many years, and it was not completed till 1868. It is an orthodox Perpendicular Gothic design, with two western towers and a low central tower (Fig. 2). Government House, pleasantly situated in "The Domain," was nearly finished in 1837; it is an attractive Tudor building (Fig. 3). The University, in late Gothic style, was designed by Edmund Blacket. It is of excellent local sandstone and is well placed at the top of a gentle slope. Its three constituent colleges house students of the various religious denominations, as at Melbourne University. St. Mary's (Roman Catholic) Cathedral, near Hyde Park, is considered the finest neo-Gothic church in Australia, and was built from the designs of W. W. Wardell, a pupil of Pugin, between 1868 and 1905. Early examples of the Classic Revival in Sydney, besides those previously mentioned, include several pleasant houses built between *c.* 1835 and *c.* 1860, together with many public buildings. Of these the Town Hall (1868-74) is a florid Renaissance design with the inevitable clock-tower (Fig. 2), a distinction which it shares with the Post Office. Both these buildings, as well as the Anglican Cathedral, are situated in George-street, the principal thoroughfare. Recent buildings of merit in Sydney include the "Shrine of Remembrance" in Hyde Park, a memorial of the First World War (Fig. 4), and the National Art Gallery, finished in 1904, as well as a number of large commercial buildings (see Fig. 5).

11. Canberra : Temporary Parliament House, 1923-27.

In Melbourne, which still preserves some pleasant Early Victorian classic houses in Collins-street, the chief examples of the Gothic Revival are St. Patrick's (Roman Catholic) Cathedral, another design by W. W. Wardell in late Decorated style, with three prominent spires and a chevet of chapels, begun in 1849; St. Paul's (Anglican) Cathedral in early Decorated style and also with spires, these having been added in 1932, though the building was completed otherwise in 1880-91 (Fig. 6); the Scots Church (Fig. 7); the Police Courts, imitating the Gothic style of Waterhouse; and the University, commenced in 1855, though its best building, the Wilson Hall, was not erected until 1875. Here there are four denominational colleges, built at various dates from 1872 to 1918. The striking Independent (Congregational) Church in Collins-street, described as "Saracenic" in one guide-book, recalls some of Alfred Waterhouse's quasi-Romanesque creations. Among classical buildings, the Australasian Bank is Doric Greek; while the enormous Town Hall (1867-70) is, like that at

12. Canberra : School of Forestry Building, 1927.

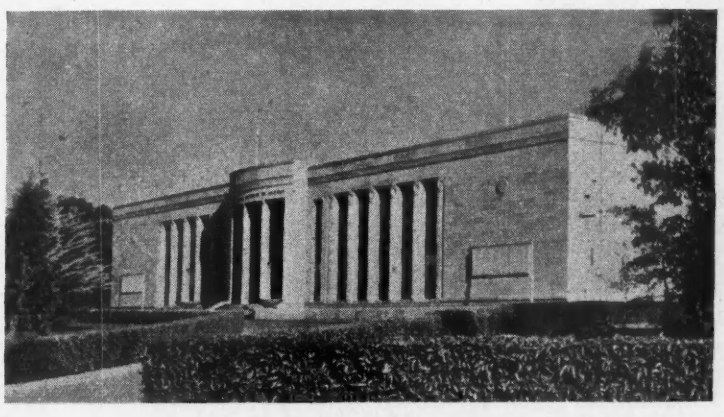
Sydney, just what one would expect a "Renaissance" town hall of 80 years ago to be; the same may be said of the Exhibition Buildings in Carlton Gardens. More scholarly designs are the Parliament House, the Law Courts, and the composite block containing the Library, Art Gallery and Museum. Among a host of recent imposing office buildings may be mentioned the Temperance and General Mutual Life Society Building (Fig. 7), the Port Authority Buildings (awarded the local medal for architecture in 1933), and the "Shrine of Remembrance" (1927-1933, Fig. 8) in memory of those who fell in the First World War. But of all the fine buildings erected in Melbourne of late years none is more notable than the huge Royal Hospital, completed in 1942 from designs by Stephenson and Turner, of Melbourne and Sydney. This colossal group (Fig. 9) makes provision for 700 beds plus 1,200 out-patients daily; but during the recent war the American forces crammed 2,300 beds in it, thereby throwing an unreasonable strain on the services. The illustration shows the south side of the hospital, with the out-patients' building in the foreground. Behind it stands the main ward block, 12 storeys high. There are three 30-bed wards on each floor. On the north (sunnier) aspect there are continuous balconies, rather narrow, on each floor. The general effect is as modern and stark as one could wish, too lavish a use of glass being rightly avoided in so hot a climate. The structure is steel-framed, with external cavity walls of brick. Some of the city's incursions into "verticality" are seen in Fig. 10.

Space does not allow of any description of architecture in the other chief cities and State capitals, founded at about the same time as Melbourne, but they contain many noteworthy modern buildings, including the imposing Parliament House at Adelaide in Roman Renaissance style; the severely classical but striking City Hall, and the austere Greek Doric Anzac Memorial in the form of a circular open colonnade, both at Brisbane; and the remarkable neo-Romanesque building, with a campanile, of the University of Perth. Some reference must be made, however, to the new Federal Capital at Canberra in New South Wales, because it is a unique example of a capital city laid out in the twentieth century on an open site, far away from all traditional buildings and associations. The only exception is a pleasant little Gothic church with a lych-gate, which was built in 1841. The site was selected, after much disputing, in 1908, and the total area of the Federal Territory, 900 square miles, comprises a great variety of scenery, including mountains over 6,000 ft. high. A competition (banned by the R.I.B.A.) for the urban area of 1¼ square mile was won, in 1911, by the late W. B. Griffin, of Chicago. It is an unusual plan, differing markedly from the gridiron layout of the other Australian cities, and contains many concentric streets following the steep contours. The great Capitol forming its central feature has not yet been erected, but the plain and dignified temporary Parliament House (1927, Fig. 11) is finished, and other notable buildings include the Administrative Offices (1925), the National Library, the Governor-General's house, the School of Forestry (1927, Fig. 12), the Institute of Anatomy (1930, Fig. 13), and the Australian War Memorial. Canberra is still a small town, but will ultimately be a most beautiful city set in lovely gardens and amid magnificent natural scenery.

In Australia the British found no existing architectural tradition. The aborigines were not in the least civilised, and they now number less than 50,000. Unlike the Maoris of New Zealand, a very different race, they have never practised building or other skilled arts, and are content with the most rudimentary hovels. The British colonists introduced all the sequence of architectural revivals that flourished in the Mother Country, and Australia is now producing designs of modernist character, for the most part sensibly modified to meet the climatic needs of a region which is almost equatorial in the extreme north, and corresponds to the latitude of Sicily or Spain or San Francisco at Melbourne in the extreme south. Professor Leslie Wilkinson has written that: "Australia is a sunny land, the climate hot, encouraging an out-of-door life by day and night; so the house required is rather a shelter from heat, wind and dust than from cold, rain and snow. This suggests spacious rooms, somewhat lofty, with thick walls, not over-windowed—the windows probably double-hung sashes—ample verandahs with shelter from gales, and a sound system of protection from insects hungry to attack the structure and its inmates. Is it wise to attempt to follow northern methods of building under conditions so dissimilar? Geography suggests that the shores of the Mediterranean may be richer in suggestion, or the Californian coast method so largely derived therefrom." This sensible advice forms a fitting conclusion to my series of articles, in which the problems of utilising, adapting or ignoring local tradition on the one hand, and of introducing European fashions of design on the other, have constantly recurred.

*(Concluded.)*

*Note.*—Thanks are due to the following for the use of photographs: the Government of Australia for Figs. 1, 5, 6, 7, 8, 10, 11, 12 and 13; of Victoria for Fig. 9; and of New South Wales for Figs. 2, 3 and 4.



13. Canberra: Institute of Anatomy, 1930.

# SOCIETIES & INSTITUTIONS

## R.I.B.A.

### Examination for R.I.B.A. Town Planning Diploma

At the examination held in July the following were successful and have been awarded the R.I.B.A. Diploma in Town Planning: R. F. Fairhurst and W. C. Poppleton.

### Mounting of Drawings

The attention of intending competitors for R.I.B.A. prizes and studentships is drawn to item No. 3 of the General Conditions. In view of the difficulty of obtaining material for mounting drawings, it has been decided to waive this regulation for the prizes and studentships offered for award this year.

## R.I.C.S.

### Examinations, 1947

The Royal Institution of Chartered Surveyors announces that 19 candidates have been successful in the Special Rating Diploma Examination held in June. Mr. H. B. Cox, Valuation Department, St. Pancras Town Hall, Euston-road, N.W.1, was awarded the Rating Surveyors' Association prize. One candidate was successful in the Land Surveying and Levelling Diploma Examination.

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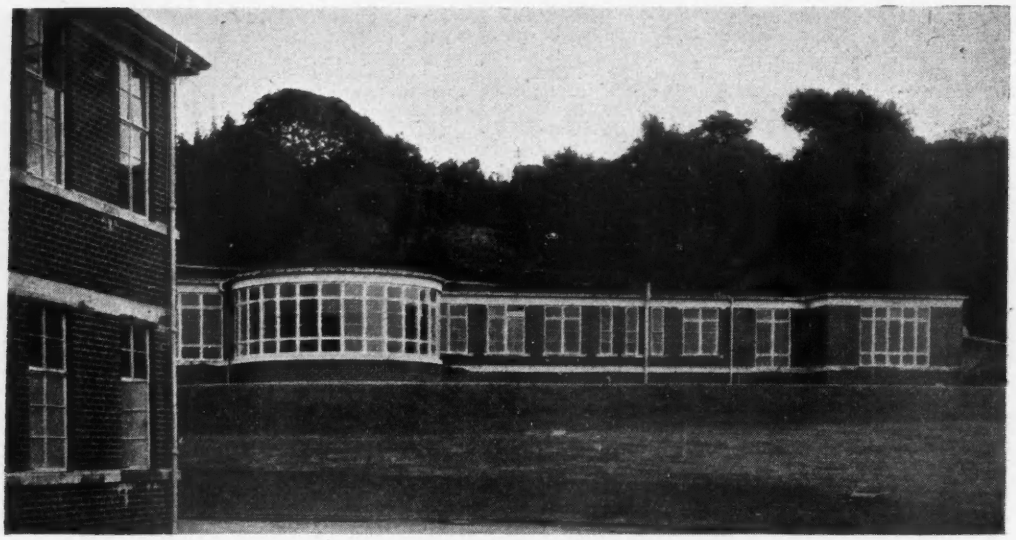
### Industrial Research Advisory Council.

The Lord President of the Council has appointed Professor P. I. Dee, C.B.E., F.R.S., and Sir William Griffiths, D.Sc., F.R.I.C., F.Inst.P., F.I.M., to be Members of the Advisory Council for Scientific and Industrial Research from October 1. Prof. Sir Lawrence Bragg, O.B.E., M.C., D.Sc., F.R.S., Prof. Sir John Lennard-Jones, K.B.E., D.Sc., F.R.S., Sir Andrew McCance, D.Sc., F.R.S., and Sir Raymond Streat, C.B.E., retired from the Advisory Council on completion of their term of office.

### A Recorder of London.

An architectural historian of London in the pictorial sense is badly needed at the moment, and it is therefore good to see that Mr. Hanslip Fletcher has produced a set of his recent drawings of bombed London in book form. Many of these drawings appeared from time to time in the *Sunday Times*, but suffered in the process of being reduced to fit in with the letter-press. The published book, however, shows them at what could have been their original size, and the technique of Mr. Fletcher as illustrated in these drawings has never been more sure. He puts this tremendous scene of the devastated heart of London before us as no photograph could possibly do, for photography can depict the scene of London but cannot show its soul; this must be left to the artist, and very capably Mr. Fletcher performs this task. "St. Paul's, seen through the windows of Bow Church," the frontispiece of the book, is a drawing of great charm, and sets a standard for the rest of the book which is well maintained.



General view of part of the Maternity Block, seen from Main Hospital Building.

# NEW MATERNITY BLOCK

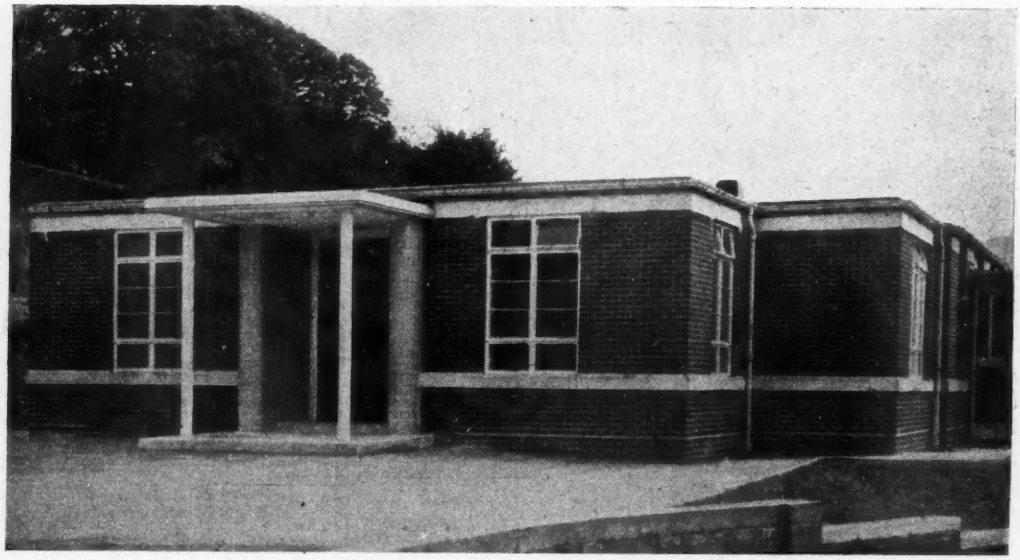
## FOR THE WEST GLAMORGAN COUNTY HOSPITAL, NEATH

L. R. GOWER, F.R.I.B.A., COUNTY ARCHITECT

A NEW MATERNITY BLOCK FOR THE WEST GLAMORGAN County Hospital, at Neath, the ground floor of which has just been completed, and which forms part of a potential three-storeyed block affording accommodation for approximately 75 beds, with access to the roof for recreational purposes, was opened by the Rt. Hon. James Griffiths, J.P., M.P., His Majesty's Minister of National Insurance, on September 13. This will allow some of the wards in the hospital, at present being used for maternity cases, to be utilised for other types of hospital cases.

Erected during the difficult war and post-war period, when labour and materials were in short supply, the building is finished to a standard that compares very favourably with what would have been done had the war not intervened. The maternity block stands on a grassy bank which slopes up from the rear of the hospital, and is constructed of 15½-in. brickwork with multi-coloured facings, reconstructed stone dressings, and a flat, reinforced concrete roof finished with waterproof dressing. The floors of the wards and nursery are finished with wood blocks, and the hall, corridors, bathroom and labour unit in terrazzo, the internal dado being finished in tiles, terrazzo and paintwork.

Accommodation for 24 beds is planned on the ground floor, in four-bed, two-bed and single-bed wards, and a large nursery with a semi-circular window is provided on the west side, which has a toilet annexe. The waiting, examination and



The Main Entrance, from the North.

Perspective of Building as it will be completed.

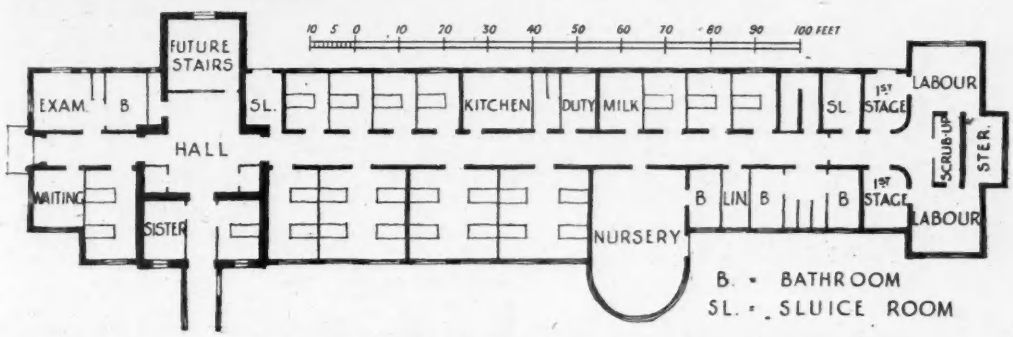
Sisters' rooms are placed at the north end, and the labour rooms at the south end of the building. The labour unit is based on a twin system comprising two first-stage labour rooms and two labour wards, with a common sterilising room and scrub-up rooms. One labour ward is easily convertible for the purpose of performing major obstetric operations. In addition, there are nurses' duty room, kitchen, milk preparation room, etc. Heating and domestic hot-water supplies are obtained by extending the existing systems from the hospital. The new building is linked to the hospital by means of a covered bridge over the approach road.

This new building was designed by Mr. L. R. Gower, F.R.I.B.A., County Architect, County Hall, Cardiff, and erected by the Direct Labour Section of his department. The sub-contractors included: H. W. Edghill and Co., metal windows; Vulcanite, Ltd., flat roof; James Gibbons, Ltd., ironmongery; Dent and Hellyer, Ltd., sanitary equipment; R. W. Brooke and Co., wood block floors; The Marble Mosaic Co., Ltd., terrazzo flooring; Carter and Co., Ltd., wall and floor tiling; Thos. Parsons and Sons, Ltd., paint; J. C. Hitt and Sons, Ltd., heating installation; J. B. Saunders, Ltd., electrical installation; A. Profit, plumbing and sanitary installations; and C. and F. Gaen, tarpaving.

A Two-bed Ward.

View of the Nursery.

## NEW MATERNITY BLOCK, WEST GLAMORGAN COUNTY HOSPITAL, NEATH

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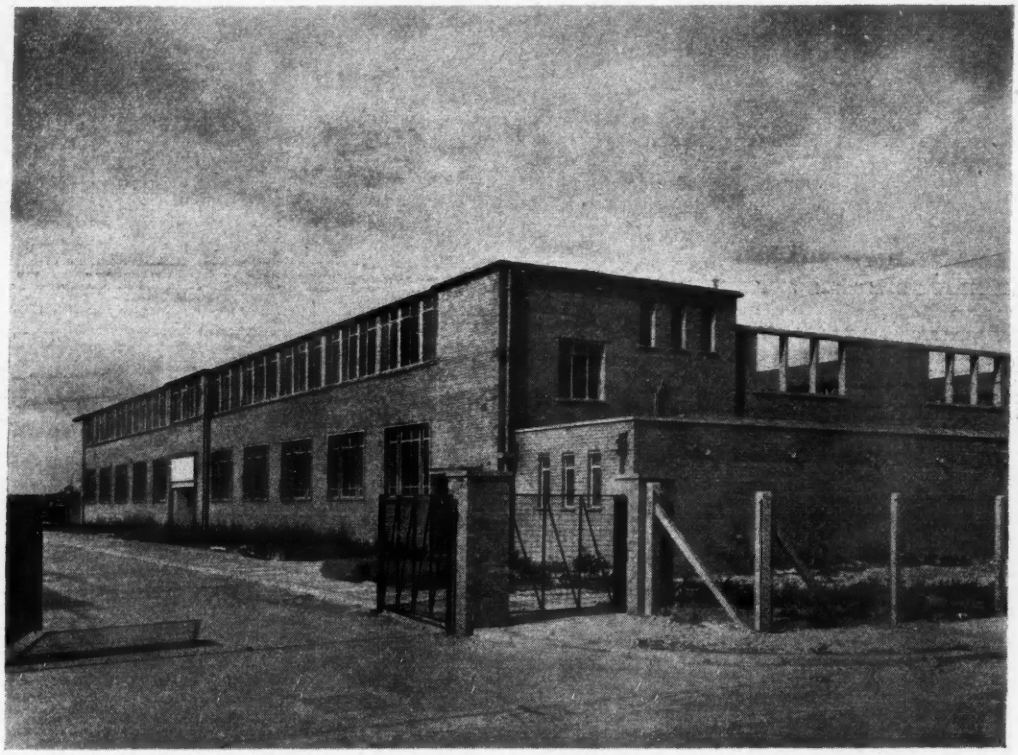


Photographs by Turner's of Newcastle.

South Elevation of Office Block.

# FACTORY AT THE PALLION ESTATE, SUNDERLAND

## EDWARDS, NAPPER AND TURLEY, F. & A.R.I.B.A., ARCHITECTS

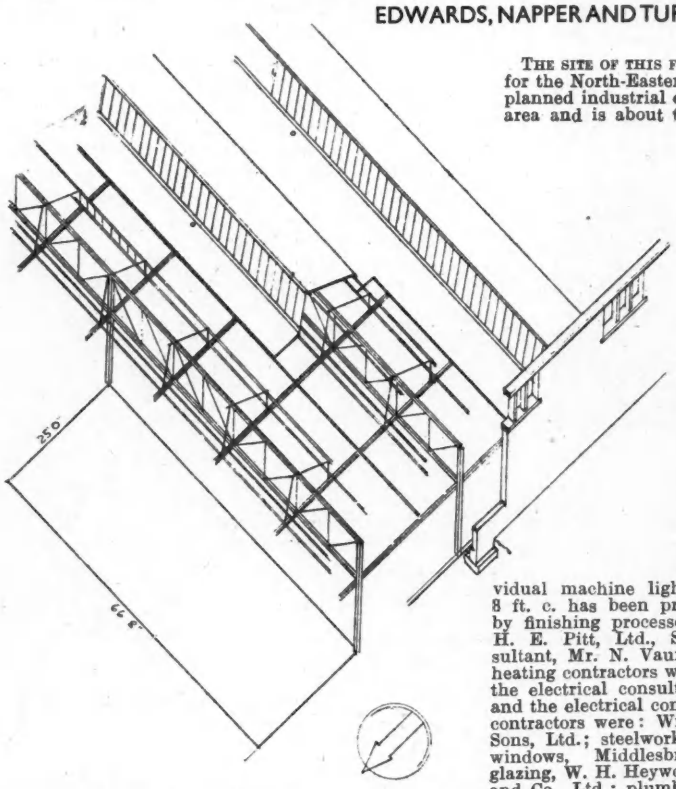


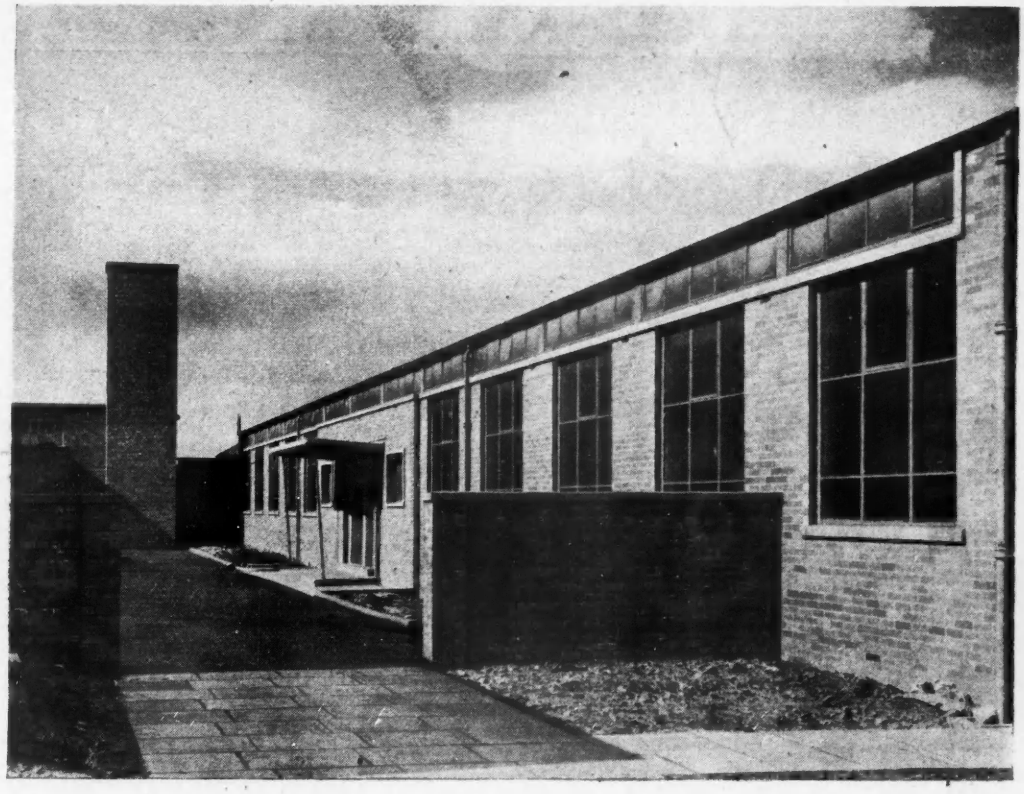

Diagram of "Monitor Roof."

THE SITE OF THIS FACTORY FOR MESSRS. A. WHYMAN, LTD., for the North-Eastern Trading Estates, Ltd., is one of the planned industrial estates of the North-East development area and is about two miles west of Sunderland. Tree planting will add to the amenities.

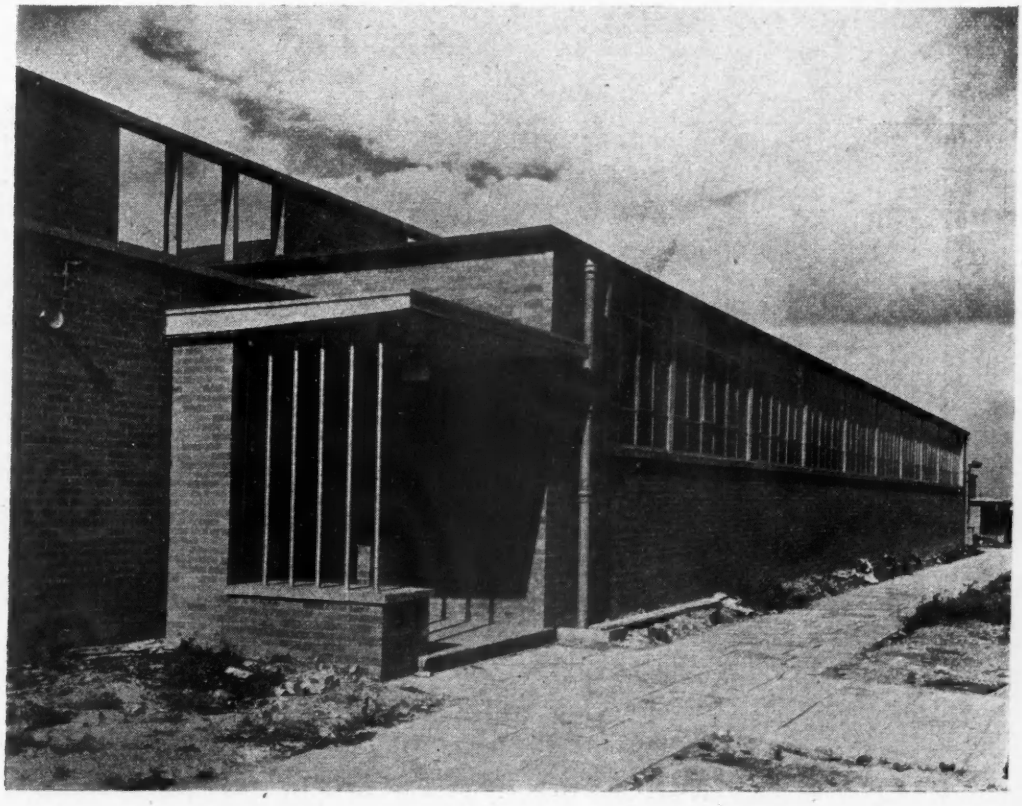
*Structure:* Steel-framed throughout. Factory in bays 66 ft. 8 in. by 25 ft. Brick walls, 11-in. cavity, externally. Steel deck roof with "Monitor" lighting. Reinforced concrete floors finished with pitch mastic. (Extension on west has a "Marlith" wood-wool cement roof.)

*Heating:* Low-pressure hot-water system. Boilers fed with automatic stokers. Unit heaters in factory, cloaks and canteen, and cabinet heaters in offices.

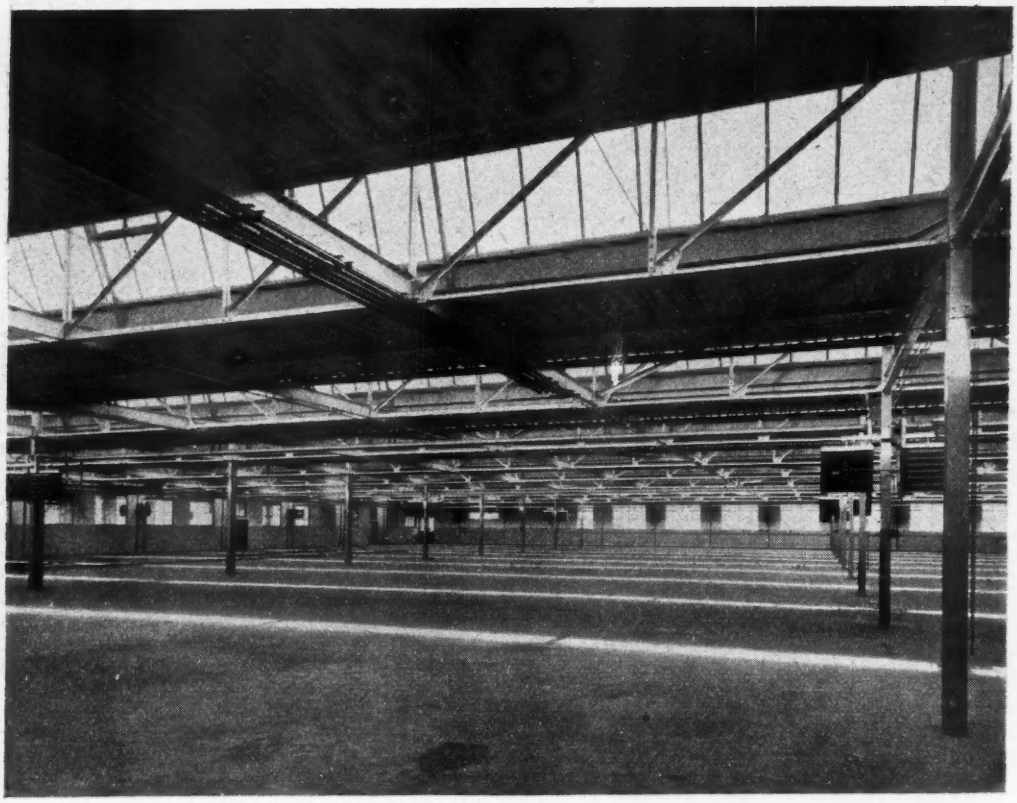
*Lighting:* Natural lighting to factory by "Monitor"-type lights, the north windows being patent glazing with louvred vents and the smaller south windows (metal casements) with one-third opening vents operated by tension gearing, chain and pulley at stanchion points. (Acknowledgments are due to the Building Research Station, Garston, for technical advice on lighting.) The processes require individual machine lighting, and background lighting of 8 ft. c. has been provided (20 ft. c. for areas covered by finishing processes). The general contractors were H. E. Pitt, Ltd., Sunderland, and the heating consultant, Mr. N. Vaux, A.M.I.Mech.E., M.I.H.V.E. The heating contractors were Steel and Co., Ltd., Sunderland, the electrical consultants R. W. Gregory and Partners, and the electrical contractors, Reid Ferens and Co. Subcontractors were: Wrought-metal work, M. Aynsley and Sons, Ltd.; steelwork, Wright Anderson and Co., Ltd.; windows, Middlesbrough Casements, Ltd.; patent glazing, W. H. Heywood and Co., Ltd.; roofing, Ruberoid and Co., Ltd.; plumbing, Samuel Talbot, Ltd.; sanitary fittings, Adamsez, Ltd.; and painters, E. Turner, Ltd.



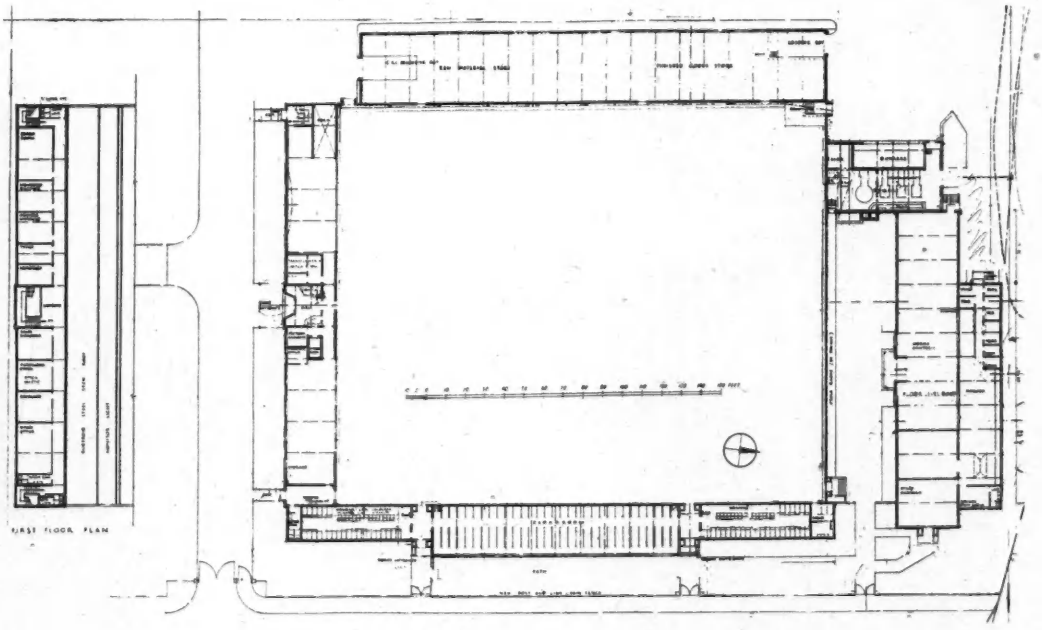
Courtyard to Canteen, showing also Boiler House Stack.



FACTORY ON PALLION ESTATE. East Elevation to Cloakrooms.



General view of Factory Interior, looking North-west.



The Plan.

## FACTORY ON PALLION ESTATE.

EDWARDS, NAPPER and TURLEY, F. & A.R.I.B.A., ARCHITECTS.

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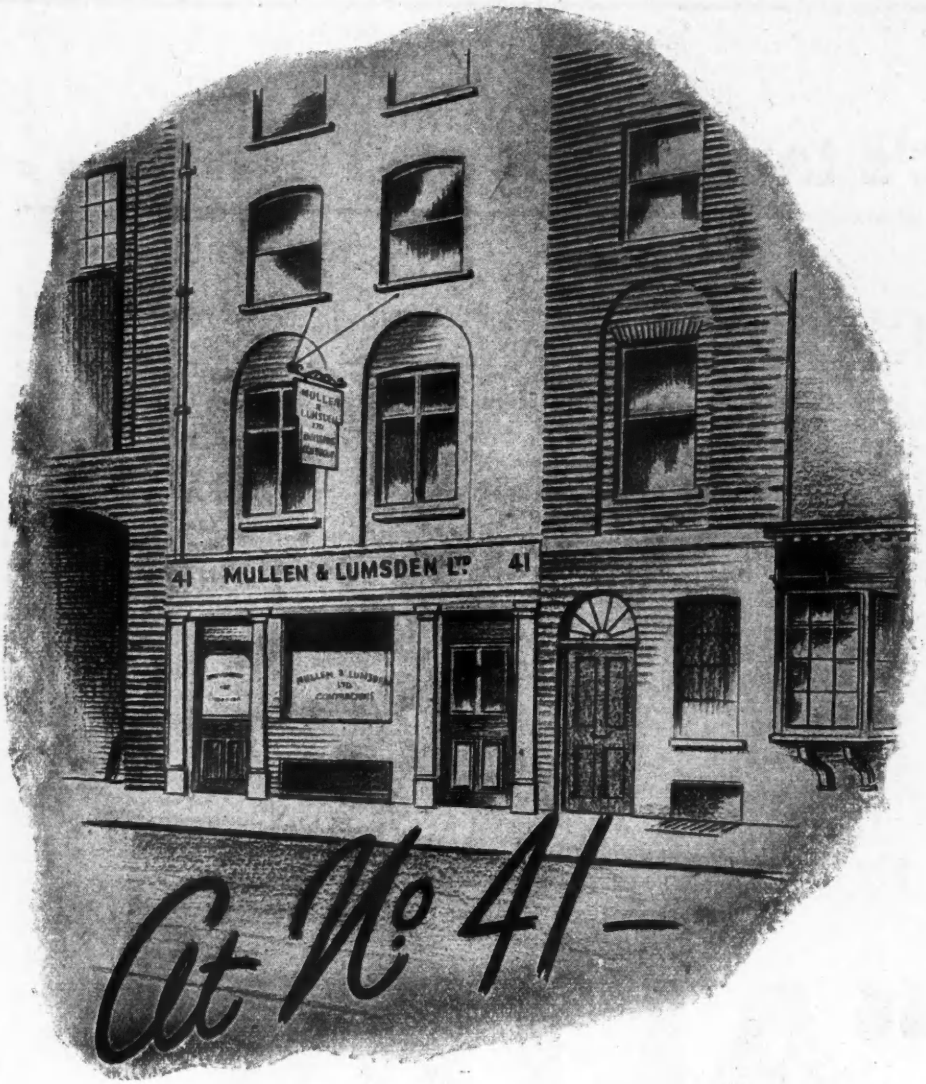


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# FACTORY LIGHTING

## A New System Designed by ARCON, ARCHITECTS

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(a) ensures illumination intensities at working surface of up to 50 lumens per sq. ft.;
(b) can be rapidly installed, and thus interferes as little as possible with current production;
(c) enables all components, *e.g.*, wiring, chokes, condensers and starter switches, to be easily accessible for maintenance;
(d) requires suspension at less frequent intervals than do normal fluorescent fittings.
(e) is less bulky in appearance than normal fluorescent fittings.

The system has now been installed in a number of mills in the Huddersfield area, and the mill owners have shown their satisfaction by commissioning further work. It is, however, not yet known whether the system has practical and economic application to other industries. The system consists of two principal elements :—

(i) "U"-shaped 20 s.w.g. metal trunking with removable capping. The trunking is of sufficient internal dimension to contain all control gear, together with all conductors for the main and secondary circuits. Separate lengths of trunking are connected one to another by junction units, and to these junction units are fixed the chains or rods from which the trunking is suspended.
(ii) The lampholders, lamp and reflector unit. These are clipped to the underside of the trunking in any required position, and reflectors are supplied in aluminium, enamelled steel or opal perspex. Whatever the material, the reflectors are designed for easy removal for cleaning purposes.

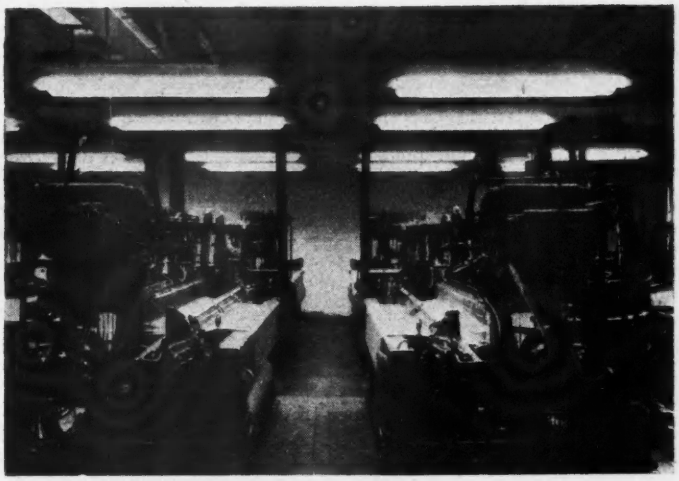
In practice, before the system is installed a survey is made to determine :—

(a) The general location of the trunking lines and the centres of trunking suspension.
(b) The location of the light fittings along the trunking in order to provide the required illumination intensities.

The cost of the system (September, 1947) works out at slightly under £10 per point if the lights are spaced at about 8-ft. intervals and opal perspex reflectors are used. This cost varies according to :—

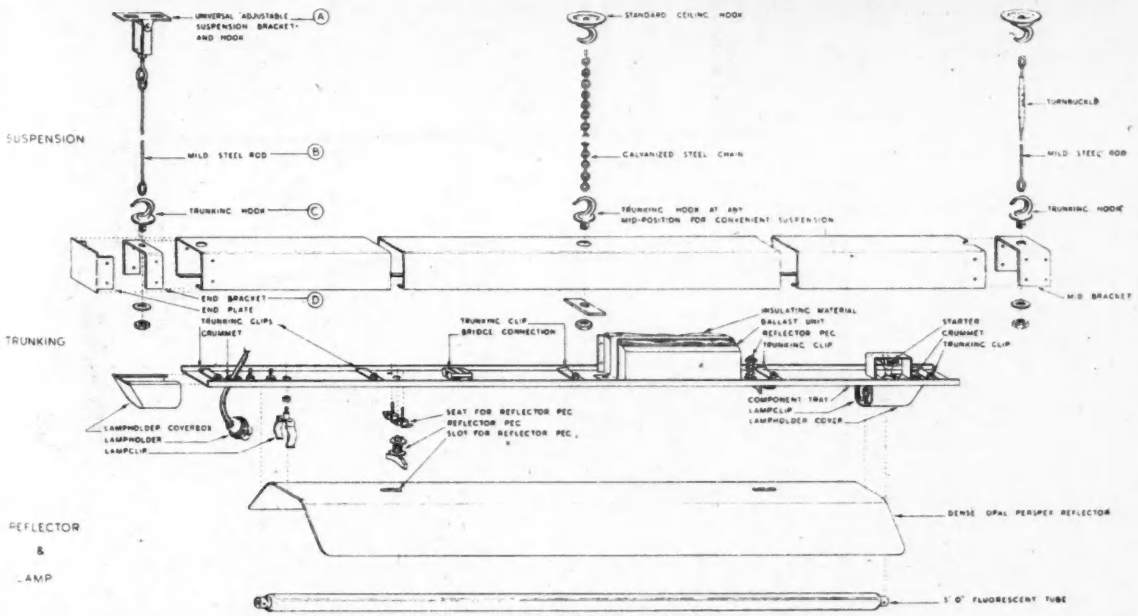
(i) The spacing of the lights;
(ii) whether opal perspex, aluminium or enamelled steel reflectors are used.

All components for the system are supplied by the Meta-Phronts Company, Ltd., 7, Park-road East, Acton, London, W.3.



View through Loom Gates.

A Twisting Frame.




Diagrammatic view of "Arcon" Factory Lighting System, Mark II.

# NEW FACTORY AND WHARF, FAVERSHAM, KENT

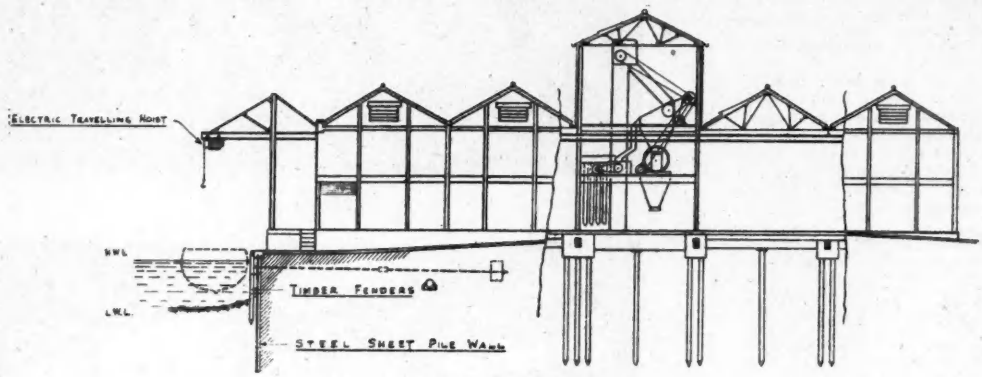
## LESLIE TURNER, B.Sc., M.Inst.C.E., CONSULTING ENGINEER

A NEW factory and store for the manufacture of fertilisers has recently been completed at Faversham, Kent, for Messrs. F. Elgar and Son, Ltd., West-street, Faversham. The work was of high priority, supported by the Ministry of Food and Board of Trade. A general plan of the site and a longitudinal section are given in Fig. 1. The works comprised the erection of the new factory for the controlled mixing and storage of fertilisers, the reconstruction of wharves to Faversham Creek, new road surfacings and drainage, installation of plant, etc., and were designed and supervised by Mr. Leslie Turner, B.Sc., M.I.C.E., M.I.Struct.E., M.Cons.E., Consulting Engineer.

THE FACTORY.—The factory building is 62 ft. wide overall and of maximum length of 152 ft. A clear height of 21 ft. is provided throughout above the ground floor slab. The central section, housing the Batch Mixing Plant, is raised above the general roof level to a total height of 44 ft. 6 in.

Owing to the nature of the ground and the proximity of a tidal creek, special precautions were necessary regarding the design of the foundations and having regard to economy. This was solved by the following load division into two portions :—

1. The fabric of the building is carried on 106 No. 12 in. by 12 in. precast piles driven down to the chalk, and reinforced concrete foundation beams and stabilising




Longitudinal Section and Part West Elevation.

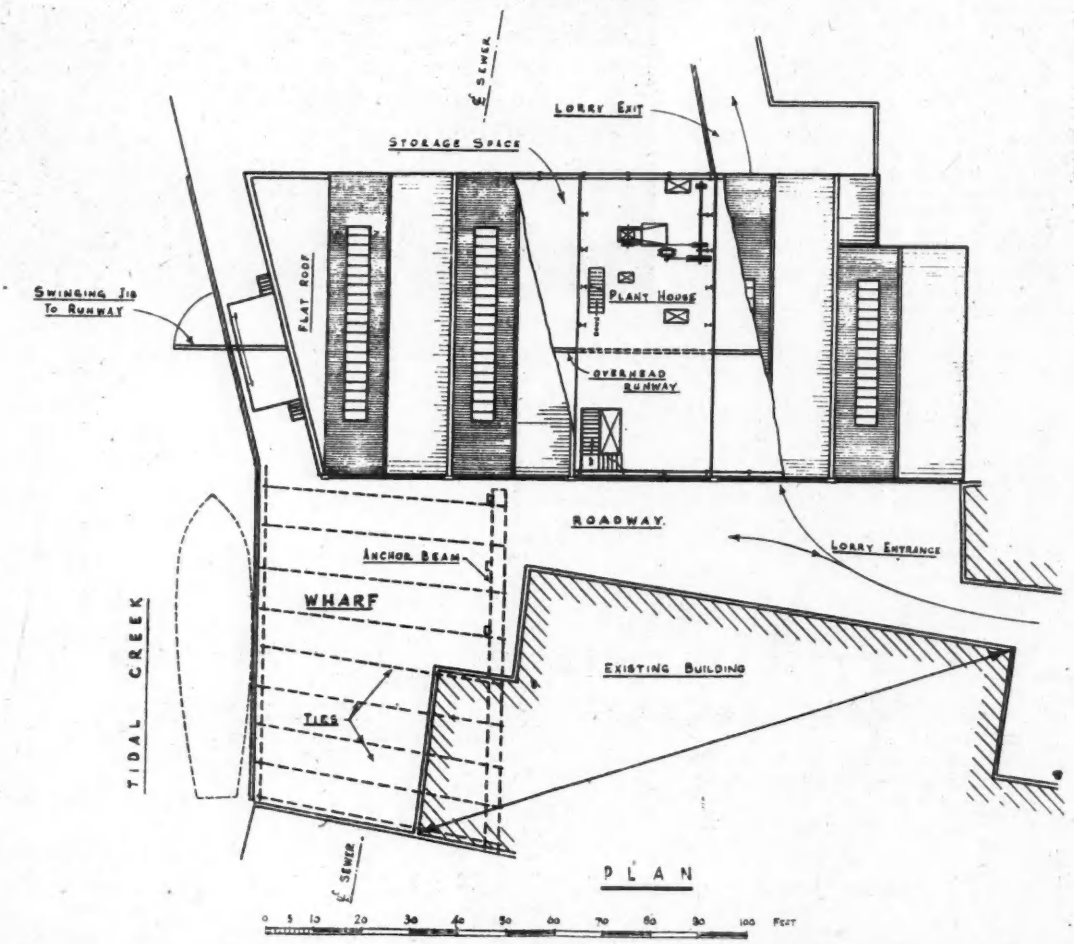



Fig. 1.

# BUILDING EXHIBITION

## OLYMPIA NOV. 19—DEC. 4

## THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS & THE LONDON MASTER BUILDERS' ASSOCIATION

take pleasure in announcing that they will be represented at the Building Exhibition at Olympia from November 19th to December 4th. During that time they will be "At Home" to all builders whether members or not. A specially warm welcome is extended to members of other Regions of the National Federation coming to Olympia for the first time for ten years.

*All enquiries to the Secretary*

**LONDON MASTER BUILDERS' ASSOCIATION**

**47, Bedford Square** **London, W.C.1**

# 1¾ MILE RUNWAY FOR THE BRABAZON AIR LINER

THIS GIANT RUNWAY at Filton for the largest landplane air liner yet projected is one of the strongest in the country and marks a further development in the scientific use of high quality materials. The finished pavement is of high grade granite concrete 12″ thick, laid on an 8″ concrete base. Under the concrete and in the marginal safety areas there are two 8″ layers of compacted stone and over 400,000 tons of hardcore. The runway is nearly 1¾ miles long and 100 yards wide, involving nearly 1 million cu. yards of excavation.

*Constructed by* JOHN LAING & SON LIMITED

BUILDING AND ENGINEERING CONTRACTORS

ties, etc. A main municipal sewer ran at depth under the building, requiring avoidance by piles and with the possibility and wayleave to tunnel under the building for repair at any future date.

2. On the other hand, most of the ground-floor slab bears directly on the ground or filling, which was necessary to raise the floor above high-water level. This division of carrying the load required special investigation and unusual construction, but saved some £10,000 in cost.

Structural steelwork and staircases comprise a total of 108 tons, and brickwork between stanchions has been reinforced to withstand outward thrust of stored fertiliser, 20 ft. high, bringing 7 to 10 cwt. per sq. ft. superload on to the floor.

Wind loads based on chapter 5, Code of Practice, were taken in the design in addition to the silo or side pressure from fertiliser material. Steel and concrete and brickwork were treated against fertiliser corrosion. Apart from the reinforced concrete flat roof and coping at the north, or creek frontage of the factory, the roof is sheeted with asbestos cement.

THE WHARVES.—The old timber wharf has been completely reconstructed with Appleby-Frodingham No. 2 section steel sheet piling over a length of 66 ft. Tie rods 1½ in. diameter connect channel waling to a reinforced concrete anchor beam 30 in. by 48 in. located some 50 ft. behind wharf edge. Capping timber and fender piles are of Greenheart.

Fig. 2 (which is reproduced by courtesy of Sturtevant, Ltd.) illustrates the fertiliser-making plant within the building. Fig. 3 shows a general view of the completed works, looking south from the creek.

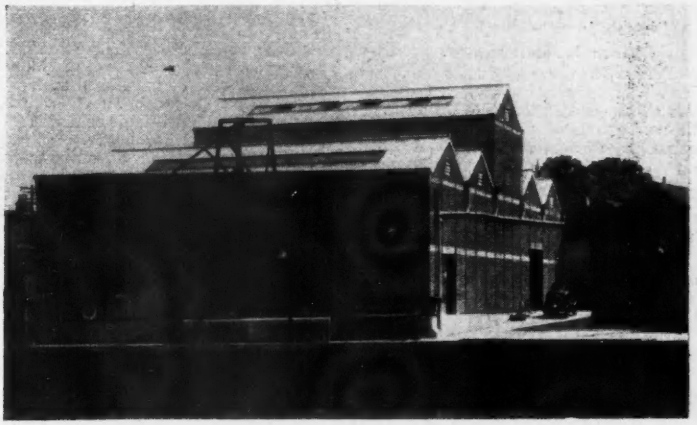


Fig. 3.—View of Completed Works.

CONSTRUCTION.—Trial borings and site investigation were undertaken in September, 1944, but construction was not commenced until October, 1945. The driving of precast piles (supplied by Samuel Williams, Ltd., Dagenham, in the varying lengths required) followed the demolition of existing property. Foundation beams were completed in March, 1946. In spite of delay in procuring bricks and bricklayers, machinery had been installed complete by October and the factory was in production.

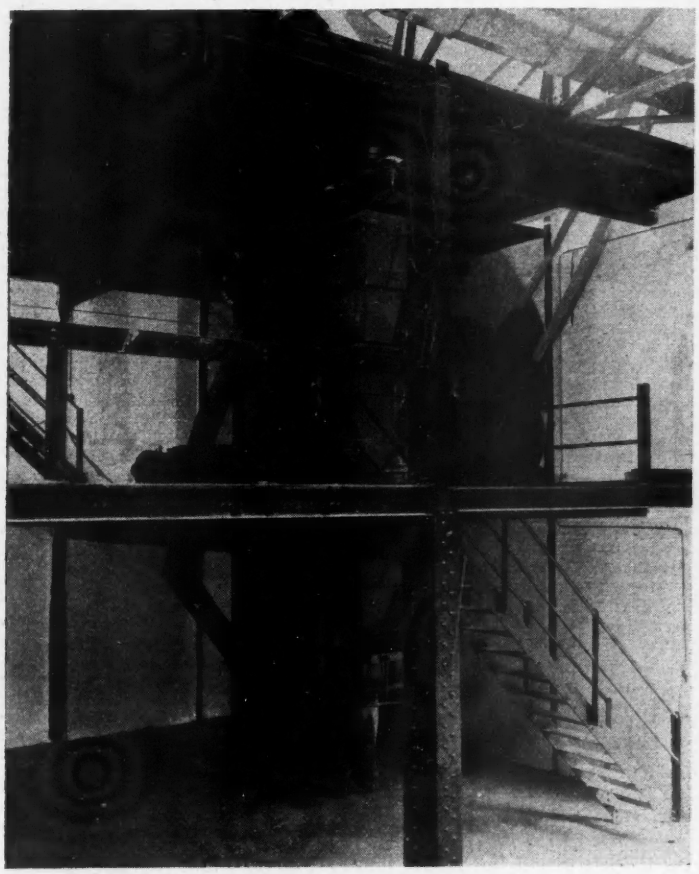


Fig. 2.—The Fertilising Plant.

MACHINERY AND STORAGE CAPACITY: In order to facilitate unloading of barges in the creek, a two-ton travelling hoist has been installed. The hoist travels on a rail suspended from main roof girders, which passes through sliding doors on the north wall of the factory. The rail extends the entire length of the factory and by means of a movable arm may be swung out over the creek, thus enabling the hoist to be loaded directly over barges and travel back into the factory.

Storage capacity of the factory is 2,000 tons of material, and the one-ton batch mixing fertiliser plant installed is capable of manufacturing 70 tons of fertiliser in a normal day.

During construction and the usual tedious negotiations with the multitudinous array of licensing and other controlling authorities, notification was received that at some future date A.C. would be laid on to cover part of the new power and lighting requirements, instead of increasing the existing D.C. supply. This occasioned some duplicate cables and wiring, motor exchanges and arrangements for the functioning of the eventual dual system of supply.

CONTRACTORS: The foundation piling and reinforced concrete beams, together with the steel sheet piling and reconstruction of old timber wharf, were carried out by the Piling and Construction Co., Ltd.; structural steelwork by Lindsay's Paddington Iron Works, Ltd.; asbestos cement roofing and vertical sheeting to upper walls of plant house by Turner's Asbestos Cement Co., Ltd.; roof glazing by Mellowes & Co., Ltd.; fertiliser-mixing machinery by Sturtevant Engineering Co., Ltd.; and travelling hoist by R. D. Cardiff, Ltd. Lighting, cables, wiring, switch-gear, etc., were supplied by Troughton and Young, Ltd.

The general work was carried out partly by Messrs. E. Fuller and Son, Ltd., of Faversham, and partly by the clients' direct labour under the resident engineer, Mr. H. A. Coles, B.Sc., A.M.I.C.E.

### A.B.S. Annual Report.

A SMALL but welcome increase in the number of subscribers is reported in the Annual Report for 1946 of the Architects' Benevolent Society, 66, Portland-place, London, W.1. Special collecting-boxes for use in architects' offices and departments, and in societies connected with architecture are now ready and may be obtained on application to the Society's offices. The boxes are intended for the collection of small sums from those who are not able to afford a large subscription.

# CORRESPONDENCE

## Alice in Slumberland.

To the Editor of *The Builder*.

Sir,—Life, for all of us to-day, is so controlled and organised that we can do little until we have filled up forms asking for somebody's permission to do it, and receiving in return other forms, generally refusing consent, but if granting it telling us exactly how, when and where it may be done. By such means all human activity will presently be registered, and its records completely classified and filed, presumably for the compilation of masses of statistics from which may be deduced a basis for further regulations and controls.

When one desires to carry out any building work, large or small, it is necessary to submit plans to the local authority, accompanied by several forms duly filled in describing the work in detail. If by good fortune such proposals are passed by the council, one receives from them a large printed form, some twenty-seven inches by eight, divided by perforations into seven sections. The first announces that the plans have been approved and is, of course, for our retention; the other sections are blank notices to be completed and returned at intervals notifying the start, progress and completion of the works involved.

I have just received from a local district council a composite form of this kind, which, curiously enough, tells me on the first section (by the written insertion of the word "not") that plans submitted for a certain proposed bungalow have *not* been approved by the council, but still appends the six notice forms, which I am directed to fill in and return, stating when I propose to begin the work, complete the foundations, damp course, drains, and finally the whole building, and when it is to be occupied! Is it to be implied that (a) the council, having run out of "disapproval" forms (as is extremely probable these days) are thus reduced to mis-using their superfluous "approval" forms, or (b) am I to assume that the council anticipate that I shall wilfully proceed with the work, despite their disapproval?

Fortunately, I am not really concerned to find an answer to this problem, since I did not send in the plans referred to.

Cornwall. A. Edgar Beresford.

## The Depressed Profession "Architecture."

To the Editor of *The Builder*.

Sir,—The letter in your issue of October 10 seems to have missed the main point raised in the letter of October 3 by Mr. A. L. Abbott, F.R.I.B.A. This refers to the forcing of architects, not draughtsmen, into Government or local government employment.

It appears that many architects in private practice will not take on assistants who have been so employed as they consider that they lack initiative and a sense of responsibility. I sincerely hope that this movement away from private practice will be brought to a halt, as I would rather abandon the profession I have chosen than become a cog in a local government office.

Total Government employment must inevitably lead to Left-wing State-controlled "Architecture" which will be the end of spiritual freedom in our particular art.

D. M. Evans,
Hove, Sussex. Student, R.I.B.A.

## Mr. Bevan and Housing.

To the Editor of *The Builder*.

Sir,—I read with interest Mr. Bevan's replies on the housing question in your note in last week's issue of *The Builder*. In view of the variation between these replies and the information given by the Regional Controller and Ministry Officials to a housing congress composed of builders and representatives of the local authorities in Gloucester Guildhall on October 9, I think we should be informed what the present position of housing is.

The meeting was called mainly to push the Airey house by the Regional Authorities of the M.o.H. and M.o.W., several of whom gave us the details set out below :—

1. That the Minister of Health had now decided that no more tenders for housing were to be approved for the present, except in mining and agricultural districts.

2. That tenders had already been approved or sanction given to local authorities for 350,000 houses which at the present rate of progress would be sufficient to last the industry for two years.

3. That the M.o.H. wished local authorities to push the Airey houses, as, owing to the shortage of bricklayers and plasterers, these would give additional houses.

4. That, owing to the urgency of the problem, local authorities were told not to wait to go out to tender but to negotiate a price direct with the builders and get on with the job.

5. That the price on which negotiations were to start was £1,370 for an Airey house, on a level site with normal water supply and drainage, exclusive of land, roads and sewers. That variations of cost, owing to extra works on the site, could be adjusted on the M.o.W. schedule for the aluminium house.

6. That in the £1,370 was included a sum of £350, for what was called the Airey house, supplied by the M.o.W., and this included the outside framing and outer cladding from the foundation raft to top of plate, and also the studs for the internal partitions and the lattice joists for the first floors. The remaining 75 per cent. of the work to the house, including the timber roofs, internal linings and all fittings, would have to be supplied and completed by the contractor in the same way as for the traditional house.

7. The question was asked : If tenders for the Airey houses could be negotiated, would it not be fair to allow local authorities to negotiate tenders for the permanent houses, as this would be the means of getting houses much quicker in the rural districts? The answer was that local authorities had been negotiating tenders in the rural districts for the past twelve months.

I do not think this can apply to Wiltshire, as I am not aware that builders have been approached, and in view of the amount of work put into the permanent houses by the architects and surveyors, the prices are coming out so high that builders will not trouble to tender. In one case in a Wiltshire rural district after advertising twice, no tender was received, and in others, even after advertising more than once, only one tender was received.

8. The point was made that there were up and down the country thousands of houses which had the walls built and the roofs on, but could not be finished owing to the Ministry not being able to get the internal fittings on the job in time, and in view of the fact that the Airey houses only consisted of mere walls, would Airey houses be allowed to jump the queue for fittings, etc., so these could be finished before the permanent houses, which had been waiting for fittings, etc., for months, would get them? Only an evasive reply was given to this question, so that I am afraid the permanent houses will still have to wait.

9. The question of shortage of cement was raised, and we were told that although there had been difficulties, there was no shortage, and the question of distribution was still in the hands of the manufacturers and merchants. This is entirely contrary to our experience in Wiltshire.

10. Conferences to push the Airey house have been held in Taunton and Gloucester in the S.W. region; as there were only two of us from Wiltshire the question was asked if a conference was to be held in Wiltshire, which is a mainly agricultural county, but the answer was that this was not considered necessary.

I think it is only fair to the building trade that the facts about the Airey houses, as we see them in the West Country, should be given to the public.

W. J. Rendell, Chairman,
Devizes. F. Rendell and Sons, Ltd.

## Housing : A Broken Undertaking.

To the Editor of *The Builder*.

Sir,—By imposing a ban on building works, the Government has pushed our essential post-war housing programme from the top of the priority list to the bottom, thus breaking its main election promise to provide homes for the people.

I would like to know if the Government's own "home" also comes under this ban—in other words, has work been stopped on the rebuilding of the House of Commons, or is it still proceeding on the grounds that it is of more importance than homes for the people?

Alexander Furness.

London, N.W.8.

## Ballast: "Is there a Racket?"

To the Editor of *The Builder*.

Sir,—In your issue of September 19 we were permitted to draw attention to our experience in the matter of ballast delivered to our housing site which, incidentally, is in the London region. The purpose was to endeavour to assist ballast-using builders, especially those who, unlike ourselves, are not actually on the site to which deliveries are made and are therefore reliant upon the experience or astuteness of the individual responsible for signing delivery tickets. We had no compunction, therefore, in cloaking our good deed for the day under a *nom de plume*. ["Private Enterprise Builders."]

Mr. George A. Hotter (for Ellis Laboratories), in a resultant letter published in your issue of October 10, has either missed the point or endeavoured to distract attention from it by referring (1) to the British Standard Specification, and (2) to limitations placed upon producers by current circumstances. These aspects serve merely as red herrings.

As we said in our original letter, we ordered (in five-yard loads) "all-in" ballast, or, as some term, "as raised." Mr. Hotter speaks of materials "as they occur," which we assume has much the same meaning.

Instead, we received on more than one occasion three yards washed ballast with two yards washed sand loaded on top, and which we were at pains to show was correspondingly disadvantageous both in price and quality. This washed and graded material was processed by the very equipment which Mr. Hotter asserts, probably correctly, to be in short supply.

By adopting the policy of separating the fines and the aggregate of "as-raised" material, then loading the former on top of the latter and charging up as five yards "all-in" ballast, the financial return would be increased by 33 per cent.

so far as the invoice is concerned (as reference to the details of our earlier letter will show).

We share with Mr. Hotter the hopeful opinion that this questionable practice is not general, but repetition tends in our view to rule out the "accident" which he ventures as explanation. Further—and to satisfy any doubting assumption—following a credit adjustment by our merchants, our experience was, with our approval, notified by them at the time to the London Area Ballast Producers' Section.

S. J. HUNT

[The Hunt Construction Company]. Shirley, Croydon.

## FOURTH BUILDING CONGRESS

THE fourth Building Congress, under the auspices of the Building Industries National Council, will be held at Folkestone, on Tuesday and Wednesday, November 18 and 19. Fixtures have also been arranged for Monday, November 17, for the benefit of delegates arriving in Folkestone on Monday or earlier.

The Congress has been divided into four sessions, each of which will be opened with brief addresses by four experts in their particular subjects.

Admission to the Congress is by ticket, price one guinea, obtained from the B.I.N.C. at 11, Weymouth-street, W.1.

The programme will be as follows :—

MONDAY, Nov. 17 (2.15 p.m.): Visit to Dover to inspect plans for reconstruction, followed by reception by His Worship the Mayor of Dover. (3.15 p.m.): Films on new forms of house construction and other films of interest to the building industry (arranged in co-operation with the Central Office of Information).

TUESDAY, Nov 18 (10 a.m.): Opening of the Congress. Welcome to delegates by His Worship the Mayor of Folkestone. First Session: The Present Position. A discussion on what is being done, what are the obstacles to progress, and what should be done to expedite progress. Papers will be presented and brief addresses given as follows:—Housing: Mr. Cyril Walker, O.B.E., M.C., F.R.I.C.S. (Director of Housing and Valuer, London County Council); Factories: Mr. G. L. Greaves, A.R.I.B.A.; Schools and other buildings: Mr. C. G. Stillman, V.-P.R.I.B.A. (Architect to the Middlesex County Council); War Damage and Redevelopment: Mr. E. H. Ford, O.B.E., M.Inst.C.E. (City Engineer, Coventry); Discussion.

TUESDAY, Nov. 18 (2.15 p.m.): Second Session: What Lies Ahead. A discussion on the future prospects of the industry, the demand for building, the availability of labour and materials. Papers and addresses as follows:—The General Situation: Paper to be presented by the Congress Committee of the Building Industries National Council; The Labour Position: Mr. R. Coppock, C.B.E., Hon. A.R.I.B.A. (Gen. Sec. to the N.F.B.T.O.); Availability of Materials: (1) A Traditional Material—Timber: Mr. P. O. Reece, A. M. Inst.C.E., M.I.Struct.E. (Director of Constructional Research, Timber Development Assn.); (2) A New Material—Aluminium: Dr. E. G. West (Technical Director, Aluminium Development Assn.); Discussion. (6.45 p.m. for 7 p.m.): Congress dinner at the Hotel Metropole, Folkestone. (9 p.m.): Reception to delegates.

WEDNESDAY, Nov. 19 (10 a.m.): Third Session: Research and Training. A discussion on research in the building industry, the assimilation into practice of new technical developments, education and training for the industry. Papers and addresses as follows:—Research: Professor C. A. Mace (Head of the Building Research Unit of the Medical Research Council); The Architect and Technical Development: Mr. Alister G. MacDonald, F.R.I.B.A.; The Builder and Technical Development: Mr. J. W. Laing; The Training of Operatives: Mr. J. W. Stephenson, C.B.E. (President, N.F.B.T.O.); Discussion. 2.15 p.m.): Fourth Session. Problems of Organisation. A discussion on the operations of the industry under conditions of full employment, the report on "Placing and Management of Contracts," distribution and transport problems. Papers and addresses as follows:—The Architect: Sir Thomas P. Bennett, C.B.E., F.R.I.B.A.; The Surveyor: Mr. H. W. Langdon, F.R.I.C.S.; The Builder: Mr. Nigel Hannen, B.A., M.I.O.B.; The Distributor: Sir Dudley Pryke, Bt. (Chairman, Distributors of Builders' Supplies Joint Council); Discussion.

# "THE SCOTLAND OF TO-MORROW"

## PLANNING CONGRESS AT EDINBURGH

A THREE days' Planning Congress opened in Edinburgh on October 3. The Congress was held in the Merchant Company's Hall, and was convened by the Town Planning Institute (Scottish Branch), the Scottish National Housing and Town Planning Council, the Town and Country Planning Association (Scottish Section), and the Royal Incorporation of Architects in Scotland.

Major Sir Humphrey Broun Lindsay, D.S.O., presided.

Opening the Congress, MR. JOSEPH WESTWOOD, M.P., who at that time was Secretary of State for Scotland, said how right were the organisers, in seeking a theme for the Congress, to choose "Scotland To-morrow," and continued :—

"'Scotland To-morrow' is largely in our own hands. If it does not reach the heights of our expectation we can only blame ourselves. Certainly, its planning will not be subject to those strange alien influences about which we hear so frequently. There will be no pattern drawn up in some dark office in Whitehall imposed willy-nilly on the authorities of Scotland. Nor, may I say, do I intend to have one drawn up in St. Andrew's House. The only planning that is worth while is that which is based on full knowledge of local conditions. As one who has had experience of the work of local authorities, I believe that they are more likely to know their own possibilities and limitations. They are also more able to arouse (with the help given them by voluntary bodies like many of those represented here) the interest of the ordinary man and his local pride. What is planning, after all, but a reflection of social consciousness on the part of each community in particular and a more scrupulous sense of national housekeeping of the common people? Democratic planning is not a branch of science which can be practised in isolation and put into effect without the intelligent co-operation of the ordinary citizen."

### The New Planning System.

PROF. W. G. HOLFORD, M.A., P.-P.T.P.I., B.Arch., A.R.I.B.A., speaking on "The New Planning System," said the objects of planning legislation were many, but the really fundamental power that all good Planning Acts should provide was the power to organise and improve the living and working conditions of human beings. Planning attracted all sorts of cranks whose enthusiasm for one form of control outran their ability to put things in their order of importance—in other words, to plan. This year Parliament had added to the Statute Book the Planning Act of 1947, probably the most far-reaching mechanism for controlling the physical environment in the public interest that any authorities in the world possessed. The powers were enormous, but they were completely untried. If the new planning system was to work as intended, it must be handled by people with courage and vision, and not by cranks, so that the life of the average citizen would show some benefit. The most important feature of the new Act was the increase in positive powers of development as compared with negative powers of control. There were at present conflicts between different branches of physical planning, between physical and economic planning, between both and public opinion. Would the new legislation remove some of these difficulties?

The intentions of the Act were clear. It provided for the making of plans, the control of development and positive action to promote the execution of plans. The old statutory planning scheme was static and unwieldy. The new system was more hopeful, but at present extremely vague. It was worth looking into the prospects of solving in the future what had proved to be intractable administrative problems in the past, firstly, to secure that when land was scheduled for a particular development, that development was actually carried out, was well designed and fulfilled its economic and social purpose; secondly, to eliminate waste by such things as reclaiming derelict land, building on empty sites in central areas, bringing homes and work places into a more satisfactory social relationship. No one knew how the powers would be used in practice during a time of intense economic crisis. The old question of "to plan or not to plan" would come up again in new and strange forms.

A most useful train of thought at the present time was a definition of the rôle of planning, and particularly of essential physical planning, during a production crisis.

### Good Home for the Countryman.

The point that housing could no longer be regarded as primarily the concern of the larger centres of population was stressed by SIR FRANK C. MEARS when he spoke on "Regional and Rural Planning." He pointed out that whatever the methods adopted the aim should be to create conditions under which the countryman, no less than the townsman, should have a good home, a choice of employment for his family, and access to a range of social facilities. "The cost to the nation will be negligible as compared with that of maintaining the crippled countryside," he added.

Rural planning, whether it be physical or economic, must be envisaged, for a time at least, from a new standpoint, so that all concerned with roads, housing, agriculture, forestry, hydro-electricity, light industry and tourism, and not least, national finance, might come to realise that there was great need for co-operation.

There was scarcity to-day of many things, but throughout the Scottish countryside the most scarce of all was native stock of young people, on whom all else depended.

There could be no simple solution of the problem of depopulation of a countryside so complex as that of Scotland, especially since emigration, once a hated necessity, had become a fixed tradition.

New towns might actually serve to create new problems of depopulation unless balanced by rehabilitation schemes directly related to the land and its resources.

These towns would not have to be regarded as primarily industrial. They would have to have social, educational and cultural institutions, such as could not be afforded by small, scattered communities, their prime purpose being to sustain the community life of the surrounding countryside.

### An Urgent Situation.

MR. MAXWELL FRY, B.Arch., F.R.I.B.A., speaking on "New Plans—New Architecture," said :—

The threatened separation of architecture from town planning would divert and waste our powers. Our pressing need was to solve the problem of how to build and to rebuild our towns to-day. This problem must be thought of as how to bring harmony to the industrialised way of life, how to humanise the dead beat rhythm of the machine.

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# SOME NOTES ON AMERICAN PLUMBING

## PAPER READ TO THE ROYAL SANITARY INSTITUTE

"Some Notes on American Plumbing"* was the title of a paper read on October 15 to the Royal Sanitary Institute by Mr. F. L. Barrow, M.Sc., A.M.I.C.E., M.I.Struct.E., A.M.A.S.S.E., M.R.S.I., Principal Scientific Officer, Building Research Station (Department of Scientific and Industrial Research). Following is the full text :—

Many people have asked the question : "How does American plumbing compare with British?" I am going to presume that you, too, would like to know the answer to this question. It has been put to me often enough during the past few months. I had it also in America. On one occasion it came with somewhat disconcerting suddenness. My questioner was a roving radio operator on Cincinnati railway station, who lifted his microphone in front of my face for me to broadcast my reply to the American people. I feel somewhat less nervous about trying to make some answer to it this afternoon, because perhaps I know a little more about the subject than I did then, and you are, I think, in a better position to follow my response than most of my unfortunate listeners of Cincinnati. Further, I know you will bear with me while I first clear the ground in two rather important ways.

First, I think I must define plumbing for this particular purpose. I will take it to mean the design and installation of water supply and waste and soil systems in and around buildings, and of the usual domestic plumbing appliances and fittings. This definition leaves out heating by hot water and roof plumbing.

Second, I would prefer to limit my remarks in this paper to present-day ideas in the two countries about what good plumbing should be. This may be less exciting than a recital of what American visitors to this country think of some Victorian plumbing in our older buildings, or what we, on our part, might think of the numbers of American homes still without piped water supply and indoor closets; but I fancy a comparison of modern plumbing ideas in the two countries is rather more useful to us at the moment. If anyone on either side of the Atlantic wishes to compare modern British and American plumbing, he might study the plumbing codes of the larger cities in the United States and Canada, on the one hand, and our own drainage by-laws, water authority regulations and standard specifications on the other. I might refer also, in our case, to the forthcoming codes of practice dealing with sanitation.

With these two qualifications, I think I can say that the standards of plumbing in both Britain and America are quite high, but that in some matters we can learn from the Americans and in others they can learn from us. So you see that I cannot answer our question in general terms by saying they are better at plumbing than we are, or that they are trotting along behind us. One can only really make useful comparison in matters of detail, and that is what I want to do, as far as I am able.

Although it is true that both British and American modern plumbing is of high quality, there are quite a number of differences in practice. These are due not so much to divergencies of outlook on the part of plumbing designers as to differences in conditions. If we had their conditions we should probably do much as they do, and *vice versa*.

The following are some basic causes from which I think most of the differences spring :

1. *Water Supplies.*—American water supplies, on the whole, are much more abundant than ours, enabling them to supply 80 or more gallons per head per day for domestic consumption alone, while we have to regard 30 gallons as quite a good allowance. (In giving the 80-gallon figure I have already converted to Imperial gallons.)

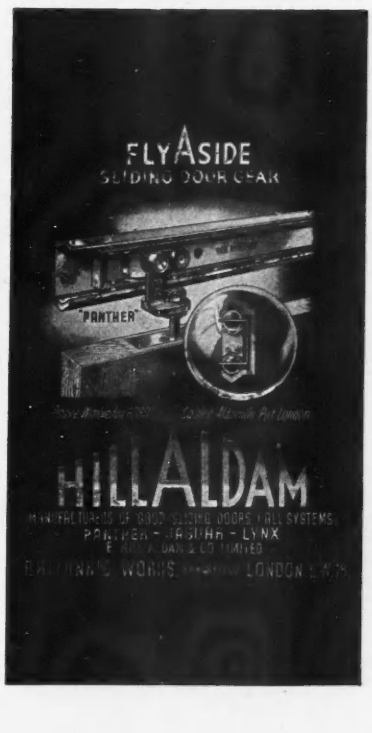
2. *Climatic.*—In the more northerly parts of the United States and in Canada the winter temperatures are low enough to necessitate fixing all soil, waste and rain-water pipes within the buildings.

3. *National Characteristics.*—There are certain differences in outlook between the two peoples which affect plumbing practice.

### 1.—Water Supplies

Let us take first the question of water supplies. I am not going to try to give the reasons why they have so much more water available than we have. This is not plumbing, and I do not pretend to know anything about it. I will just accept the fact that in American plumbing systems up to three times our quantities of water pass through the supply and waste pipework of the average dwelling.

Having so much water on hand has led the Americans to dispense almost entirely with cold-water storage cisterns in individual houses. They only seem to use cisterns in tall buildings where pumping to storage at suitable levels has to be employed to secure the necessary head of water on the higher floors. One effect of the "no cistern" practice is that hot-water storage tanks are at mains pressure. This throws a greater responsibility on the operation of safety valves, because the tanks have no expansion pipes such as we use. When I discussed this matter with some Americans, they pointed out that if the safety valve failed to operate in the event of excess pressures in the tank, there could be relief by back pressure through the mains. I am not sure that this possibility would be regarded with favour in this country.




An advantage of taking all supplies from the mains lies in the simplicity of pipework. Also it means that one does not have to find room for the cistern in the planning of dwellings. Further, it eliminates the risk of freezing at the cistern or pollution introduced at the water surface.

Flushing water quantities for American closets may be double our usual two to three gallons, and I must say that their closets flush very well. This may be partly due to their use of siphonic, rather than wash-down, pans; but I imagine the ample quantities of flushing water have a lot to do with it.

One interesting effect of the larger flushing discharges is that the American requirements as regards soil-pipe sizing and anti-siphonage ventilation are not the same as ours, or, at least, not necessarily the same. Hence I think we should take note that the extensive researches carried out at the Bureau of Standards and elsewhere in America are not directly applicable to our own practice. When we want data for the proper and economical design of one-pipe systems, we must do our experiments with British closet pans and other appliances and British plumbing discharges.

Plentiful water for plumbing in America has led to a much freer use of flushing valves in public and industrial buildings, blocks of flats, hotels, etc. In the more expensive private dwellings one would be likely to find flushing valves, but in housing generally it seems normal to use the flushing cistern, as we do. I refer to the low-level cistern; I never saw the high-level pattern for closets in America. The main reason why flushing valves are not used in ordinary housing is, I think, because a supply pipe of about 1¼ in. diameter is necessary to supply the valves, while ¾ in. is the usual size of supply pipe to such buildings. It also appears that their flushing cisterns are somewhat cheaper than their valves, and more readily repaired by local labour when they need attention. The Americans do not worry about a "waste-water preventer" device in their flushing cisterns—they use a simple form of valve control—and their overflows run into the pan.

The combination of mains supply and flushing valves has led to one very significant difference between American and British plumbing. I refer to the degree of risk of contamination of water by back-siphonage. It is only within the last twenty years or so that it has become generally recognised in America that when water is served to an appliance without interposing a cistern open to atmospheric pressure, any "submerged inlet" on the appliance can produce a serious risk of back-siphonage of polluted water into the supply lines. This sentence needs some explaining, I think. Let us suppose we want to empty the contents of a goldfish bowl by means of a siphon tube. Everyone knows that if you fill the siphon tube with water, place one end in the bowl and allow the other end to fall to a lower level, you can siphon out the contents. In a building, when the ground-floor stop valve is closed, any tap at a low level, if opened, can siphon out a high-level appliance filled with waste water, provided the supply to the appliance is open and submerged below the waste water surface. In normal everyday usage the water inlet to plumbing appliances, as we know them, is not submerged, but in the case of siphon-jet closet bowls, common in America, there is a flushing connection to

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a jet within the water seal. Hence it is quite easy to see that when a stop valve at ground-floor level is closed, say, for repairs, and a ground-floor sink tap is opened, there is quite a chance of drawing the liquid from a first-floor closet pan at the sink tap. It is not essential, to get this action, to close the stop valve. Excessive draw-off or leakage from pipes can cut off the supply to an upper-floor closet pan, and thus produce the effect described.

If the danger of back-siphonage were limited to the siphon-jet type of closet pan, a simple remedy would be not to use this kind of pan. However, with all appliances there are times when the waste is stopped up, and then one must consider the possibility of the waste liquid rising to the flood rim—*i.e.*, to the point where spillage on to the floor begins to take place. In such a case any inlet which is below the flood rim is a "submerged inlet."

There is no way with the conventional closet pans of avoiding the submerged inlet as I have just defined it because the bowl cannot be flushed properly without bringing in the flushing water below the top edge. In the case of waste appliances such as baths, wash-basins and sinks, the submergence can be avoided by the simple procedure of lifting the inlet above the top level, and in modern American practice this is what is done. Further, they arrange an air gap of an inch or two above the flood rim as a safeguard against reduced pressures lifting the water above the standing surface. Perhaps I should mention here that the level of the overflow hole of an appliance does not really come into the picture, because if the waste is stopped the overflow, in most modern wash-basins and baths, is automatically put out of order. Hence the level which matters in connection with back siphonage risks is the flood level—*i.e.*, the level at which the waste would begin to spill over the rim of the appliance.

The American remedy now being applied in the case of the unavoidable submerged inlet on the closet pan is the backflow preventer, a device which admits air in the event of back pressure, and so breaks the siphon. I wish I could say that they now have a backflow preventer which not only operates satisfactorily under test and when first fitted, but will also continue to do so for the lifetime of the building, and, further, is absolutely proof against misuse. I do not think they have reached this point, and I rather doubt whether it is possible. In my view, the only real safe treatment, when you must have a submerged inlet, is to interpose a cistern between the flush pipe which connects to the pan and any other part of the water system. This means either that a flushing cistern must be used or the flushing valve fed from a storage cistern.

In British practice, when we use flushing valves we do not permit them to be supplied directly from the mains, and I hope we never shall. However, as regards the waste appliances—baths, wash-basins, etc.—we do permit submerged inlets by not lifting the tap outlet above the flood rim as the Americans do. If we did this, applying the precaution to storage and flushing system as well, I think we should be quite safe against the chance of pollution by back-siphonage. One is told that back-siphonage is not a hazard in our plumbing, but personally I believe that it *can* happen if submerged inlets of any kind, without cistern protection, are permitted. If it is true that no cases of illness in this country have yet been attributed to back-siphonage from baths and wash basins, this is no proof, to my mind, that ill-health has not, or could not, be caused in this way. In America, since they began to wake up to the dangers of back-siphonage, they have proved conclusively that outbreaks of illness have definitely been caused by back-siphonage of polluted water into the supply pipes, and there is a good deal of American published work on this matter. A list of references to some literature on this subject which I came across in America and was able to bring away with me is given at the end of this paper.

The larger amount of water used in America gives a better flushing of their drains. I was told that blockages due to water-carried solids in building drains are very rare, and that they find it satisfactory to use gradients as low as one in a hundred for 4 in. and 6-in. pipes. Another factor which I think tends to decrease the risk of such stoppages is that siphonic pans with 2½-in. to 2½-in. outgoes naturally retain certain solid objects in the trap of the pan which in the case of 3½ in. outgoes would pass into the drain. When you talk about drain stoppages in America with sanitary engineers their minds seem to jump instinctively to tree roots, not to solids carried down by the waste discharges.

## 2.—Climatic Differences

The second basic cause of difference between American and British plumbing practice which I mentioned was climatic. In many parts of the States and in Canada it would not be practicable to have external soil-waste and rain-water pipes, because they would freeze-up entirely in the winter. When internal vertical stacks are used, the one-pipe plumbing system follows rather naturally, because it avoids having to find room for two large diameter vertical pipes, one for soil and one for waste. In the United States and Canada the one-pipe internal stack system is practically universal. The question as to whether we should make a general change-over to internal stacks in this country is an interesting one, but the subject is important enough to demand detailed treatment, and it would not be satisfactory for me to try to discuss it in this paper. I would merely say in passing that I do not think we should give unqualified approval to internal stacks. I think we should only accept them when the dangers of leakage, particularly over food, food preparation tables and food stores have been fully considered in the planning of the building and in the installation and upkeep of its plumbing. (There is also the very awkward factor that, in the conversion of buildings, rooms originally planned as bedrooms and living rooms may become kitchens or food stores.) I will, however, deal with one aspect of the internal one-pipe system, and that is its effect on domestic drainage layout. I was struck quite favourably by the simplicity of American domestic drainage layout; though it is quite obvious, when you think it out, that one-pipe internal stack plumbing leads to simpler domestic drainage than two-pipe external stack plumbing. In American plumbing the common stack takes a bend to the horizontal below ground level, within the building line, and then runs straight to the private or public sewer wherever it may be placed. Domestic drainage layout associated with our external two-pipe system of plumbing is often complicated by the need to bring the drain lines round to the correct side of the house to meet the sewer, and, in any case, one has to make a junction between waste and soil drains below ground. The relative economy in pipework, junctions and manholes which may be obtained by using one-pipe plumbing is, therefore, fairly obvious. Perhaps it would be a good thing if, when we are considering the cost of one-pipe internal plumbing, we made it a more regular practice to take drainage costs into account at the same time.

One of the effects of the summer climate in North America is the prevalence of showers for bathing. Where they can, they use the shower as an auxiliary to, not a substitute for, the bath tub. I think the prevalent use of showers explains why their bath tubs are an inch or two wider than ours; they are also a good deal lower. You will have heard the stock arguments on the subject of the height of baths, and will know that one is that a low bath is safer for infirm people; but I fancy that one of the reasons for the low American bath is that since the baths are wide they need to be correspondingly low to keep down weight and cost. On the question of the length of baths, if anyone can tell me why the Americans are satisfied with baths 5 ft. in overall length while we insist on 5 ft. 6 in. as a minimum, I should be very glad to know! Similarly, I am puzzled about their 19-in. by 17-in. wash-basins, while our minimum is 22 in. by 16 in.

## 3.—National Characteristics

The third basic cause I mentioned was the differences in outlook between the British and American peoples. He would be a bold man, indeed, who ventured far into this field after a three months' visit to America on a very specialised mission, so you must please take what I say under this heading as very much open to correction. However, for what they are worth, these are my impressions as to how plumbing in America differs from British plumbing because the Americans differ somewhat from us in outlook.

The Americans have a natural fondness for and pride in mechanical devices, and a new gadget attracts them, while we tend to regard novelty with a certain amount of suspicion. I think this may be one reason why they have developed flushing valves, garbage grinders, plate-washing machines,

pop-up wastes, power-driven drain-clearing tools, and so on, more than we have. Some of their devices soon go off the market, but I think the good ones get adopted rather more readily than they would over here.

When it comes to the question of concealed pipework in plumbing, the Americans do not seem to worry as much as we do about the possibility of leakage from buried or encased pipes. They would rather take a chance of this happening very rarely than put up with exposed pipework as general practice.

I noted that good plumbing, and plenty of it, is highly regarded by the Americans, and there is less shyness in talking about it than over here. When you mention plumbing to a layman or laywoman in America it does not arouse so much of that peculiar kind of humour to which the subject is sometimes subjected in this country.

In America they seem to be rather more conscious than we are of the dangers of infection. For example, in their public urinals flushing is hand- or foot-operated at each stall, but there seems to be a certain reluctance to use the handle. In public toilet rooms they make it much easier, with ample provision of paper towels and soap ejectors, for one to wash after using the toilet. One must allow for our particular difficulties at the present time in making the same provision over here, but I do not think we were very good at this even before the war. One of the reasons for the popularity of showers in America is that they consider the shower a more hygienic device for cleaning oneself than the bath tub.

Individualism in America hastens the introduction of new mechanical inventions and methods, but tends to retard uniformity of codes and the standardisation of plumbing appliances. I think we are much further ahead in this country in these matters, and some Americans think so, too. It has been said that one cannot expect so much uniformity in America as in a compact little island like ours, but I am not sure there is a great deal in this argument. A characteristic of the Americans is that they are very fond of travelling about, especially for holidays (perhaps I should say "vacations") and for the holding of conferences or "conventions." These conventions, as you all know, are a prominent feature of American business life, and often the wives of the business men, not to be outdone, arrange conventions of their own. Besides this, in the sanitary world at any rate, they circulate information freely from State to State, one example being the issue of a monthly "News-Letter" by the American Society of Sanitary Engineering. Hence I would attribute the lack of uniformity of plumbing codes and the slower progress of standardisation on a national scale more to the individualism of the average American than to his lack of knowledge of what the other man is doing in other and distant parts of his country.

While talking of distances, there is one difference in practice which seems to arise from long freight hauls. I refer to the much greater use of enamelled cast-iron wash-basins and sinks in America. I fancy there are various reasons for this, but one appears to be that the metal products are more easily crated and suffer less from handling than pottery appliances of this type.

There is another difference which does not come under my three basic headings, and that is the extensive use now being made in the United States and Canada of pitch fibre pipes, up to 8 in. diameter, for underground drainage. So far, we have not done much in this direction but shortage of raw fibre material is, I suppose, one reason.

After saying so much about how American plumbing differs from our own, I do not think I should conclude without pointing out that in many ways their practice is very similar. They seem to use lead, copper, iron, steel and asbestos cement pipes for much the same purposes as we do, and I found their methods of joining these pipes to be quite familiar. I also noted that their experience with prefabricated plumbing has been closely parallel to our own.

I am afraid these notes have been rather discursive and that my limits of space and time in this paper have not allowed me to follow up many of the subjects as far as I would have liked. We are hoping to have a fuller report of my visit to America on plumbing published by H.M. Stationery Office within the next few months.

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# NEW METHOD OF SLATE ROOFING

## USE OF PREFABRICATED PANELS

A new method of slate roofing by prefabricated panels, enabling a roof to be completed by semi-skilled labour in a fifth of the time taken at present, has been invented by Mr. W. E. Evans, of Nant Peris, near Llanberis, North Wales. It is claimed that it will reduce costs by 30 per cent. The new roofing, which it is hoped to prefabricate in large quantities in the inventor's factory at Penygroes, Caernarvonshire, as soon as the necessary organisation can be completed, is so made that its separate units can be slipped between and fixed to the rafters, so as to complete the roof in a matter of hours.

The small slates used in these panels can be obtained from the heaps of slate debris in the slate valleys of North Wales. It is hoped to get Government support in the installation of the machinery required to exploit the waste slate in this way.

### Specimen Roof Erected.

The Ministry of Works has assisted in perfecting the method at its experimental station at Thatched Barn, Barnet, where a specimen roof has been erected, and tests and costing carried out by technicians of the Chief Scientific Adviser of the Ministry have proved so satisfactory that the Ministry has placed an order to roof one of its new buildings by the method.

In the past, cost of production and the cumbersome method of roofing have frequently ousted slates from roofing contracts in the building industry. By prefabrication 80 per cent. of the time now taken in outside roofing will be saved, so that slates will now compete favourably with any other roofing materials. Mr. Evans is to see the Minister of Health in London to demonstrate the economy of his method. Further research to economise in timber by the omission of alternate rafters is being undertaken. Mr. H. H. Hughes, production officer for the building industry in the North-west, says it is hoped to roof a conspicuous demonstration building by the method at the Government training centre, Windmill-lane, Denton, Manchester.

# BUILDERS AT GOLF

THE autumn meeting of the Building and Allied Trades Golfing Association was held at the Berkshire course, Crowthorne, on October 9, when about 70 people were present. At the annual meeting following play, Mr. M. Tait was re-elected captain, and Messrs. F. Stanley Griffith, F. G. C. Jackson and V. Tatlock were elected to the Committee for the ensuing year. It was decided to hold the next spring meeting at Moor Park. Votes of thanks were passed to the Berkshire Club, and the captain, and after further votes of thanks to Mr. D. T. Hill and the hon. secretary (Mr. Hubert H. Hill) the meeting terminated.

### Results.

*The Builder* Trophy.—1st, J. Farr, 69 net, won on last nine holes; 2nd, R. Bailey, 69 net.

Singles, Senior.—1st, J. Farr, 69 net; 2nd, T. E. B. Pratt, 70 net.

Singles, Junior.—1st, R. Bailey, 69 net; 2nd, F. Lee, 71 net.

Four-Ball Foursomes.—1st, R. E. Aris and S. F. Billson, 7 up (won on last nine holes); 2nd, T. E. B. Pratt and F. A. Jarvis, 7 up.

# DEMONSTRATION OF BUILDERS' PLANT

THE demonstration of builders' plant arranged by the Southern Counties Regional Joint Production Committee and the Ministry of Works (South-Eastern Region), and mentioned in these pages four weeks ago, ended with the last demonstration at Worthing on October 3. Some six hundred builders in Kent, Sussex and Surrey availed themselves of the opportunity of seeing the plant under working conditions, while the surveyors and architects of most of the local authorities also attended. Students of technical colleges and their instructors, and one or two housing committees visited the demonstration. Several well-known London contractors showed keen interest in the various items of plant shown.

The demonstration, we are informed, was undoubtedly well received, and a great deal of healthy discussion took place. It is hoped to follow on this demonstration by arranging at certain centres during the winter informal talks more in the nature of discussion groups, which would deal with the various aspects and problems involved in the possible mechanisation of the building industry.

The plant actually demonstrated, and the contractors who assisted, varied slightly from those originally mentioned. At Tunbridge Wells the contractors on the site gave assistance through their committee, of which Mr. W. H. Cripps was chairman. The undoubted success of these demonstrations is in no small measure due to the whole-hearted efforts of the Production Officers in this region, Mr. J. F. Anderson and Mr. N. K. Millar.

Similar demonstrations are being arranged in the Southern Region, where these two Production Officers have been seconded, in view of the experience they have gained and their contact with plant suppliers, to co-operate with Mr. A. G. Luke and Mr. J. S. Rigden.

### Builders' Visit to Works.

Over 30 members of the Southern Counties Federation of Building Trades Employers recently paid a visit to the Rochester works of Messrs. Winget, Ltd., where they inspected various items of plant used in the building industry.

## NEWS ITEMS

### Change of Address.

The Association of Supervisory Staffs Executives and Technicians announce that the address of the head office of the Association is now 110, Park-street, London, W.1.

### Building Society Organisations.

The first of a series of publications dealing with building society administration is "General Principles of Organisation and Policy," by Walter G. Boys. The booklet is designed primarily for members of the Building Societies Institute and particularly for students of its examinations. The publishers are Messrs. Franey and Co., Ltd., Graham House, Tudor-street, E.C.4, and the price is 3s.

### Training Courses in Selection Methods.

Announcing its activities for the coming winter and spring, the National Institute of Industrial Psychology, Aldwych House, London, W.C.2, state that lectures have been arranged in London, Manchester, Birmingham, Leeds, Liverpool, Newcastle, Glasgow, and Edinburgh. Short training courses will be held in selection methods and in the selection and training of supervisors.

### Colour Wash Tests from Wool Fat.

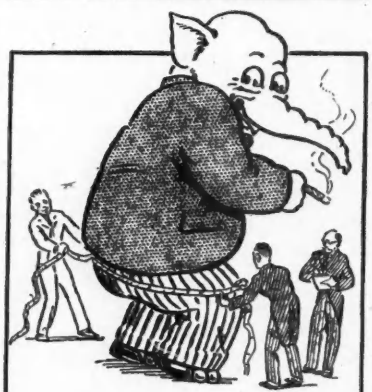
A further new use has been found for the wool fat recovered at the grease extraction plant at the Esholt works of the Bradford Corporation. It is being employed as a basis for a "colour wash" for common bricks. Promising trials are reported to be in progress at a large brickworks, and the trial of the material on two pairs of houses in Bradford has been approved.

### Softwood Allocation for Houses.

How local authorities, architects and builders can keep within the Ministry of Works timber allocation of 1.6 standards of softwood per 1,000 sq. ft. floor area is set out in a leaflet, "Timber Can Make It," issued by the Timber Development Association. The leaflet includes a typical plan and section of a Ministry of Health type house, schedule of quantities (carcassing timbers and joinery), recommended dimensions of carcassing timbers, B.S.I. joinery specifications and Ministry of Works prohibitions for timber. Copies can be obtained free on application to the Association, 75, Cannon-street, London, E.C.4.

### £153,000 Flat Scheme by Direct Labour.

The Willesden Borough Council intends to erect a block of 96 flats at Canterbury-terrace, Kilburn, by direct labour at a cost of £153,200, subject to the approval of the Ministry of Health. The tenders were publicly invited, and the one submitted by the borough engineer was the lowest. The first of the council's post-war permanent housing schemes was also undertaken by direct labour; this was for 12 flats at Buckley-road, Kilburn, the cost of which was £16,990. The job will be completed very shortly. 36 flats are to be built at Chichester-road, Kilburn, by contract at a cost of £44,332. The approval of the Ministry of Health is awaited.



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### New I.E.S. President.

With the opening sessional meeting of the Illuminating Engineering Society on October 14, Dr. J. W. T. Walsh took office as president for the 1947-48 session. This is the first time any member of the Society has been elected twice to the presidential chair, for Dr. Walsh, who is the chairman of the National Illumination Committee of Great Britain and principal scientific officer in the Light Division of the National Physical Laboratory, was president in 1929. This year the Council of the Society have decided to make the Leon Gaster Memorial Premium award to Mr. J. S. Smyth for his paper entitled "The Brightness and Legibility at Night of Road Traffic Signs."

### Refusal to Allow Overtime.

Slough Housing Committee have made a strong protest against the attitude of Slough, Windsor and District Local Joint Committee in refusing a Hayes building firm, Messrs. Camps and Jones, Ltd., permission to work overtime. The firm began working four-days-a-week overtime, as well as paying a 10 per cent. increase on wages for a month, to be continued if results justified it, on a site in Slough where they are building 124 houses for the Council. Following a visit from a representative of the Local Joint Committee, the overtime was stopped.

### Uruguayan's Flying Visit.

In Britain for a brief visit is Senor Mario Muccineli, assistant director of the Planning and Construction Section of the National Telephone and Electricity Company of Uruguay. The purpose of his visit, under the auspices of the British Council, is twofold. On behalf of his company he is here to see whether he can buy equipment from British manufacturers; and as an architect, he is studying town planning, commercial architecture and prefabricated building construction. Another commission he is hoping to fulfil is the purchase of a rotary printing press for the printing of a daily newspaper.

### Builders' Centenary.

Mr. W. J. Rendell, chairman of R. Rendell and Sons, Ltd., of Devizes, who this year celebrate their centenary, has received a letter of thanks from the King's Private Secretary for a copy of the centenary booklet published by his firm.

"The King, who as you know has been for so long keenly interested in industrial development," said the letter, "was much interested to read this record of the history of your firm during the past hundred years."

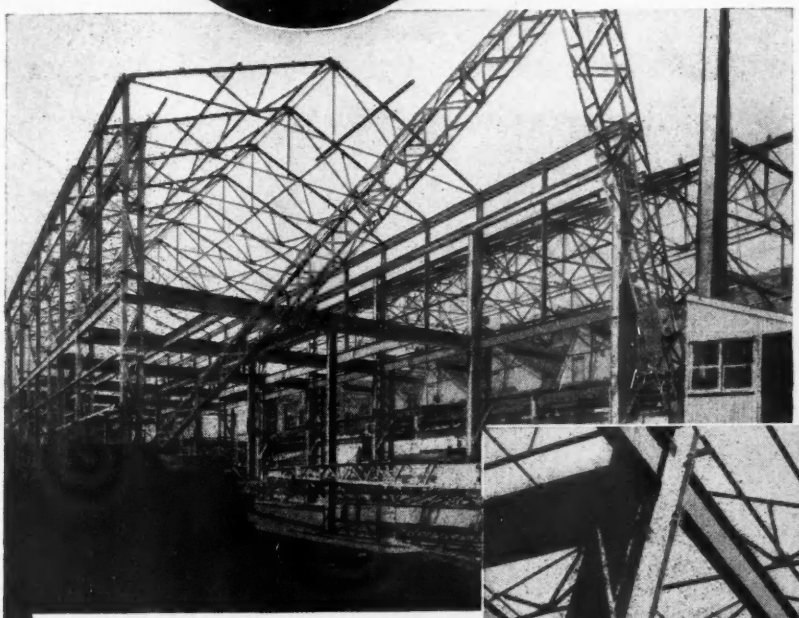
Mr. Rendell has received a letter in similar terms from the Private Secretary to Queen Mary.

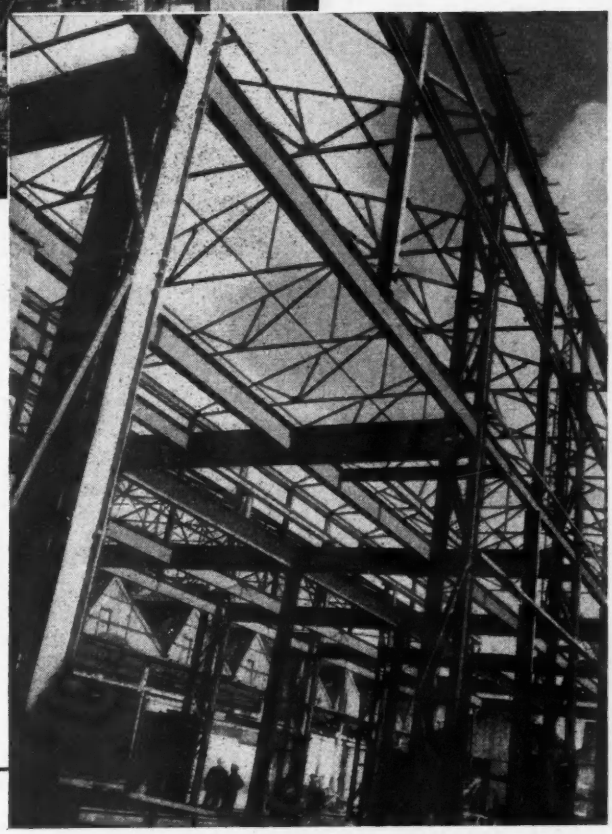
### New Draft Codes of Practice.

Three new draft codes have been issued by the Codes of Practice Committee for comment. Prepared by committees convened by the Institution of Municipal Engineers, they are: 301,101, "Excavation for drainage work"; 301,104, "Manholes"; 302,200, "Cesspools." In view of the importance of the housing programme, the scope of each of these three codes has been extended to include matters which will be dealt with in the Civil Engineering Code IV (a) "Drainage (Sewerage)," pending the completion of that code, now in preparation. Comments are invited and will be welcomed by the Codes of Practice Committee. They should be forwarded by November 1. It is to be particularly observed that the codes are in draft and are subject to amendment before final publication. Copies of the draft codes, price 2s. each, may be obtained from the British Standards Institution, 28, Victoria-st., London, S.W.1.

*Service to Industry*

. . . . EXTENSION TO A FOUNDRY





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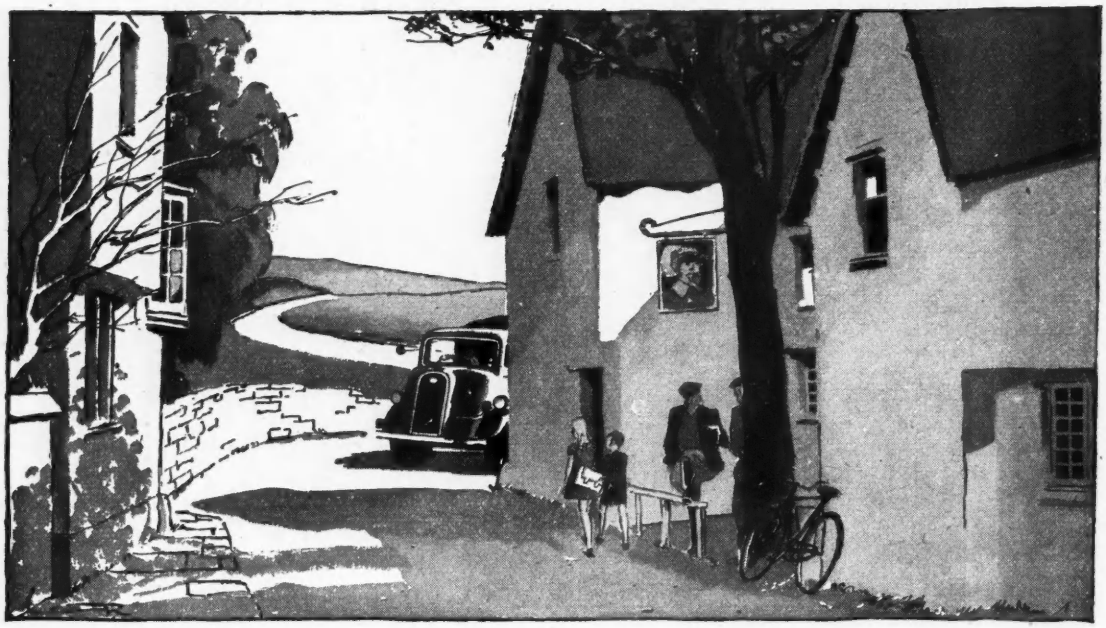
*TRANSPORT OWNERS' PROBLEMS No. 3*

# AWKWARD CORNERS



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# THE SCOTTISH BUILDER

## NEW BUILDINGS

**Bothwell.**—New block factory No. 4 proposed for which the architects are Wylie, Shanks and Wylie, 204, West Regent-st., Glasgow.

**Edinburgh.**—Dean of Guild Court granted warrant to T. and H. Smith, Ltd., for erection of factory at Blandfield Chemical Works, Wheatfield-rd., at £13,750.

**Glasgow.**—Additions and alterations to be carried out by Robb Bros. at Byron-st.

**Glasgow.**—Alterations and additions proposed at Bews Emporium, Bell-st. and High-st., for which the architects are Burnet and Boston, 180, Hope-st.; new buildings, also alterations and additions for the Alexander Cross Co., Ltd., for which the architects are J. T. Taylor and MacCrae, 212, Bath-street, Glasgow.

**Glasgow.**—School buildings proposed at Mansel-st., for which the architect is John MacNab, 129, Bath-st., Glasgow.

**Hamilton.**—McLean and Co. (Metal Windows), Ltd., 145, Bath-st., Glasgow, to build factory at Cadzow. Plans by Thomas W. Cordiner (A.), 261, West George-st., Glasgow.

**Salsburgh.**—Commercial garage etc., proposed for Irvine and Son, for which the architect is J. S. Craig, 75, Manse-rd., Newmains.

# FUTURE CONSTRUCTION

## CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

### BUILDING

**OCTOBER 27.**

**Beckenham T.C.**—Repairs to houses at Elmers-end estate (contract No. 2). B.E. and S. Dep. £2.

**Bournemouth T.C.**—Four classrooms, cloakrooms, lavatories, etc., at Charminster County Primary Infants' School. Boro' A. Dep. £2 2s.

**Huntingdon R.C.**—Kitchen and dining-room for Eynesbury C. of E. School, St. Neots. T. H. Longstaff, County S. and Architect, Walden House, Huntingdon.

**Liverpool T.C.**—Kitchen and dining-rooms at South Dockside area. City A. and Director of Housing. Dep. £2 2s

**Standish-with-Langtree U.D.C.**—8 houses at Avondale-Collingwood-st. site. E. and S., Ashfield House, Wigan-rd., Standish. Dep. £3 3s.

**Truro T.C.**—20 houses at St. George's-rd. City S. Dep. £3 3s.

**Wembley T.C.**—Rebuilding house at 25, Meadowbank-rd., Kingsbury. Boro' Treas. Dep. £2 2s.

**OCTOBER 28.**

**North of Scotland Hydro-Electric Board.**—Construction and maintenance of Errochty Power Station. Sir Alexander Gibb and Partners, 43, Northumberland-st., Edinburgh, 3. Dep. £5.

**OCTOBER 29.**

**Ongar R.D.C.**—16 pairs of houses with auxiliary services at Willingale. C., Council Offices, Chipping Ongar, Essex. Dep. £2 2s.

**OCTOBER 30.**

**Clutton R.D.C.**—5 pairs of Airey houses at Chew Stoke and 5 pairs at Paulton. Thomas and Morgan and Partners, 23, Gelliwastad-rd., Pontypridd. Dep. £3 3s.

**OCTOBER 31.**

**Caine and Chippenham R.D.C.**—Conversion of Beechfield Camp, Corsham, into temporary dwellings. Walter Rudman and Edwards, 32, Market-pl., Chippenham. Dep. £3 3s.

***Lincoln T.C.**—Conversion of hutments at Skellingthorpe-rd., into 85 temporary dwellings. City E. and S. Dep. £3 3s.

**Llandilo R.D.C.**—12 houses, Bryn-ave. Housing S. Dep. £2 2s.

**South Molton R.D.C.**—6 houses at West Buckland, together with sewers, etc. A. G. Oxland, Architect, 8, East-st., South Molton. Dep. £2 2s.

**NOVEMBER 1.**

**Rugby R.D.C.**—5 pairs of Airey houses at Grandborough; 2 pairs of traditional houses at Broadwell. D. G. McVinnie, S., 24, Warwick-st., Rugby. Dep. £2 2s

**NOVEMBER 5.**

***Beds. Standing Joint Committee.**—Police houses at Shillington. County A., Shire Hall. Dep. £2 2s

**Harrow U.D.C.**—Adaptation of Isolation Hospital, Honeypot-la., for use as residential nursery. H. W. Rackham, F.S.I., Council Offices. Dep. £2.

**NOVEMBER 12.**

**Pembroke R.D.C.**—Erection of 24 houses (16 brick, 8 Airey) on various sites. Messrs. J. Owen Parry and Lewis, Ammanford. Dep. £3.

**NOVEMBER 13.**

***Wallasey C.B.**—First stage of infants' school at Town Meadow-la., Moreton, Wirral. Director of Education, Town Hall. Dep. £2 2s.

### "THE BUILDER" PRICES

**Putty.**

The National Association of Putty Manufacturers advise us that the price of putty is advanced by 10s. per ton as from October 15.

**NOVEMBER 17.**

**Nottingham T.C.**—Boiler House Superstructure (Extension "D," Contract No. 14) at North Wilford Power Station. Cost approx. £100,000. R. M. Finch. O.B.E., M.I.C.E., City E. Dep £5.

**NOVEMBER 19.**

**Wadebridge R.D.C.**—84 Airey houses at various sites. A .E. Bewes, S., Council Offices, Wadebridge. Dep. £2 2s.

### MISCELLANEOUS

**OCTOBER 27.**

**Broadstairs and St. Peters U.D.C.**—Demolition and clearing away of concrete shelters. S. Dep. £2 2s.

**OCTOBER 30.**

**Ashford U.D.C.**—Demolition of 56 surface shelters. S. and Waterworks E., 5, North-st. Dep. £2 2s.

**OCTOBER 31.**

***Merton and Morden U.D.C.**—Demolition of 11 firegnard training huts and reinstatement of sites. S.

**NOVEMBER 8.**

**Buxton B.C.**—Demolition of two existing steel, concrete and timber footbridges and erection of two reinforced concrete bridges, Ashwood Park. B.E. Dep. £1 1s.

### PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

**NOVEMBER 17.**

***L.C.C.**—Cleaning, repainting, etc., of Blackwall and Rotherhithe Tunnels and Bridge over East London Railway. Chief E. Dep. £1.

### ROADS, SEWERAGE AND WATER WORKS

**OCTOBER 24.**

***Hertford T.C.**—Roads and sewers at Upper Cockbush Field site off Ware-rd. E. C. Harris and Partners, FF.S.I., 3, Bedford-sq., W.C.1. Dep. £2 2s.

**OCTOBER 27.**

**Cirencester U.D.C.**—Construction and maintenance of approx. 2½ miles of 27-in. dia. concrete pipe trunk sewer, etc. Lemon and Blizard, Lansdowne House, Castle-la., Southampton. Dep. £5 5s.

**Cuckfield R.D.C.**—Extension of water mains. E. and S. Dep. £1 1s.

**Dunstable T.C.**—Road and sewers at Brewers Hill estate. B.E. Dep. £2 2s.

**Hove B.C.**—Approx. 1,440 ft. roadworks, Larkhill; and approx. 870 ft. roadworks, Tongdean-rd. T. R. Humble, B.S.

**Maidstone B.C.**—Improvement of Ashford-rd. from Albion-pl. to Square-hill. B.S.

**North Devon Water Board.**—Reinforced concrete reservoir at Berrynarbor. Rofe and Raffety, chartered civil engineers, 3, Victoria-st., Westminster, S.W.1. Dep. £2 2s.

**Sleaford U.D.C.**—Roads and sewers at "Hillside" estate.

**Slough B.C.**—Reconstruction of road at junction of Upton-rd. and Upton Court-rd. B.E. Dep. £2 2s.

**Street U.D.C.**—Roads and sewers at Elmhurst site. N. H. N. Darby (A.), Westminster Bank-chbrs., Fore-st., Taunton. Dep. £2 2s.

**Wokingham R.D.C.**—Construction of sewers at Wargrave. E. Dep. £2 2s.

**OCTOBER 28.**

**Barnet U.D.C.**—Making-up of private streets in district. S.

**East Lothian Water Board.**—Laying and jointing of approx. 1½ miles of asbestos cement pipes, 9 in. dia. G. H. Hill and Sons (Manchester), 51, Mosley-st., Manchester 2. Dep. £6 5s.

**OCTOBER 29.**

**Battle R.D.C.**—Laying 2½ miles water mains, etc., Netherfield, Battle. Works Engineer. Dep. £2 2s.

**Bideford T.C.**—Construction of concrete tube and cast-iron pipe sewers, manholes, etc., screen house, storage tank and cast-iron outfall sewer, etc. F. W. S. Stanton, M.I.C.E., 5, Victoria-st., Westminster, S.W.1. Dep. £5.

**Cheltenham B.C.**—Construction of 26 sludge-drying beds, sump and pump chamber and 110 lin. yds. 6-in. dia. pumping main, Hayden Sewage Disposal Works. B.E. Dep. £2 2s.

**OCTOBER 30.**

**Conway and Colwyn Bay Joint Water Supply Board.**—Providing, laying and jointing 7½ miles 18-in. main, Maenan to Sarnmynach (Glan Conway) and other works. Oliver Jones, Eng., Trinity-sq., Llandudno. Dep. £5 5s.

**Paignton U.D.C.**—Excavation of drainage leats (approx. 9,000 cub. yds.), Clennon Valley. E. and S.

**OCTOBER 31.**

**Warwick T.C.**—Roads and sewers, etc., at Stratford-rd. site. B.E. and S. Dep. £3 3s.

**NOVEMBER 1.**

**Leek U.D.C.**—Making-up of Daisy Bank. E. and S.

***Saffron Walden R.D.C.**—Roads, sewers, etc., at Stansted, Essex. C. Dep. £2 2s.

**NOVEMBER 3.**

**Aberystwyth T.C.**—Advance preparation of site at Cae Tase site. B.S. and Water E. Dep. £2 2s.

**Clacton U.D.C.**—Roadworks in various streets. W. Aiston, S. Dep. £2 2s.

**Crosby B.C.**—4,480 sq. yds. of concrete carriageways, footpaths and drainage, De Villiers-ave. and Little Crosby-rd. B.E. and S., Liverpool. Dep. £1 1s.

**Maidstone B.C.**—Construction of 12-in. dia. concrete surface water sewer, Chatham-rd. (320 yds.). B.S.

**Niddervale R.D.C.**—Water mains extensions for 3 villages. W. K. Rodwell, A.M.I.C.E., 44, Park Cross-st., Leeds, 1. Dep. £3 3s.

***Wayland R.D.C.**—Site works at five sites. Harold Marsh (L.), 14, King-st., King's Lynn. Dep. £2 2s.

**NOVEMBER 5.**

**Leicestershire C.C.**—Reconstruction of Long Clawson Canal Bridge. Co. S., Leicester. Dep. £5.

**Taunton R.D.C.**—Erection of reinforced concrete water tower, 40,000-gall. cap., and other works, Stoke St. Gregory. Messrs. Ross Hooper and Harvey, 38, Market-pl., Chippenham, Wilts. Dep. £1.

**NOVEMBER 6.**

**Leeds C.C.**—Kerbing, flagging and tarmacadamising footpaths, carriageways in four roads. Highways Engineer. Dep. £1 1s.

**NOVEMBER 8.**

**Bakewell R.D.C.**—380 lin. yds. 9-in. dia. pipes, Winster. Messrs. Brady and Parkington, Market-st., Chapel-en-le-Frith. Dep. £2.

**Wakefield T.C.**—Construction of 2,000 yds. of sewer at Eastmoor estate. City E. Dep. £2.

**NOVEMBER 10.**

**Newbury B.C.**—Reconstruction of Park-way. E. H. Hutton, B.S. Dep. £2 2s.

**NOVEMBER 18.**

**Barnsley C.B.**—820 lin. yds. 30-in. dia. concrete pipe surface water sewer; 850 lin. yds. 18-in. and 15-in. dia. concrete pipe main outfall sewer, etc., Carlton. B.E. and S. Dep. £3 3s.

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## GENERAL BUILDING WORK

### (LONDON)

**Barking.**—HOUSES.—Plans by C. J. Dawson, Son and Allardyce, Barclays Bank-chbrs., East-st., Barking, for rebuilding 40-58, and 41-53, Melford-ave.

**Battersea.**—POWER STATION EXTENSIONS.—The Electricity Commissioners propose to complete Battersea "B" station by the installation of

a further 100,000 kW. of plant and the necessary buildings and civil engineering works.

**Beckenham.**—GARAGE.—B.C. has approved proposal by London Passenger Transport Board to rebuild Elmers End garage and bus terminus.

**Burnt Oak.**—ALTERATIONS.—Welch and Lander, 38, Gloucester-pl., W.1, are architects for alterations to 106-108, The Broadway, for the Midland Bank, Ltd.

**Cheshunt.**—HOUSES.—Edmonton B.C. to erect 204 houses.

**East Ham.**—EXTENSION.—Of factory, Romford-rd., for Bard Bros. Architect is John S. Cohen, Brook House, Winnington-rd., N.2.

**Edgware.** — OFFICES. — Charrington Warren, Ltd., propose offices at Goods Yard, Station-rd.

**Edmonton.**—CANTEEN.—M.K. Electric, Ltd., Wakefield-st., N.18, propose new canteen, Dysons-rd. Architects are Fuller, Hall and Foulsham, 212, High Holborn, W.C.1.

**Hammersmith.** — REBUILDING. — Of "Green Man" P.H., Uxbridge-rd., proposed by Fuller, Smith and Turner, Ltd., Griffin Brewery, Chiswick. Architects are Nowell Parr and Son, 97, Old Brompton-rd., S.W.

**Hampstead.**—NURSERY SCHOOL.—Hendon B.C. are considering the erection of a nursery school in the Garden Suburb area on a site between Child's Way and Willifield Green.

**Hendon.** — LABORATORIES AND OFFICES. — An application to erect laboratories and offices at Hill View-gdns., N.W.4, by Messrs. Riches and Blythin, King's Bench-walk, E.C.4, for the British Launderers' Research Association has been approved by the B.C.

**Hendon.**—HOUSES.—B.C. has approved an application submitted by Mr. R. H. Brine to build four houses at Greyhound-hill, N.W.4.

**Hendon.**—SCHOOL EXTENSIONS.—Messrs. Collcutt and Hamp are the architects for a new dining-hall and kitchen at Mill Hill School, The Ridgeway, N.W.7.

**Hendon.**—GARAGE AND OFFICES.—L. A. Hills (Hendon), Ltd., Finchley-la., N.W.4, propose garage and offices, at The Quadrant.

**Lewisham.** — DEVELOPMENT APPLICATIONS. — L.C.C. have granted the following applications to develop: A. Rigby, to erect workshop and garage at 86, London-rd.; C. G. Eaglen, to convert 4 shops at Nos. 45-51, Stanstead-rd., into 4 houses; L. Kennard, to erect 3 houses and 4 garages on part of site of No. 2, Lawrie Park-rd.

**Mill Hill.**—REBUILDING.—Plans approved for rebuilding 110-120, Bittacy-rise, for various owners. Surveyors for scheme are F. J. Meekins and Partners, 112, Park-st., W.1.

**Paddington.**—BRANCH LIBRARY.—Scheme has been prepared by the B.C. for alterations to be made to a portion of the Methodist Church, Sutherland-ave., Maida Vale, for use as a branch library. Estimated cost, £4,379.

**Paddington.**—DAY NURSERY.—B.C. are to be asked to approve plans prepared by Messrs. Ramsey, Murray and White, architects, for the permanent day nursery to be erected in the south-east corner of the Peach-st. Housing Site.

**Paddington.**—HOUSING.—The B.C. are being asked to appoint Mr. C. Sweett, F.R.I.C.S., 17, Holborn Viaduct, E.C.1, as quantity surveyor for the Bishop's Bridge-rd. Housing Scheme. Messrs. Tecton are the architects.

**Shepherd's Bush.**—CHAPEL.—Uxbridge Road Tabernacle propose new chapel and youth centre, Uxbridge-rd., W. Architects are Messrs. Cyril A. Farey and Son, 83, Prince Albert-rd., N.W.8.

**Southgate.**—SCHOOL.—Plans by W. J. Gregory (F.), 34, Millbank, S.W.1, for new school, church and monastery, Bramley-rd.

**Stratford.**—EXTENSION.—Of factory, Canning-rd., E.15, proposed by Stirling Chemical Works. Architect is T. Llewellyn Daniel (F.), 40, Wellesley-rd., Ilford.

**Wembley.** — FACTORY EXTENSIONS. — Plans approved for extensions to factory, North End-rd., for Base Metal Products, Ltd. Architects are Nicholls and Hall, 66a, Wigmore-st., W.1.

**Wembley.**—FACTORY EXTENSIONS.—Plans by L. C. Norton, architect, 16, Clifford-st., W.1, for extensions to factory at British Empire Exhibition Grounds, for Fishers Foils, Ltd.

**Westminster.**—FLATS.—The C.C. has prepared a scheme for the repair and adaptation of flat blocks 7, 8 and 9, Ashley-gdns., to provide 96 units of family accommodation. Tenders are to be invited.

**Wimbledon.**—HOUSING.—B.C. are to erect 54 flats and 43 houses at West-side, Wimbledon Common, at estimated cost of £144,000.

## (PROVINCIAL)

**Abercarn.**—Wales and Monmouthshire Industrial Estates, Ltd., to erect factory. Plans by Henry Budgen & Son, 65, St. Mary-st., Cardiff.

**Abergele.**—L. T. Salts proposes holiday camp at Llanddulas at £300,000.

**Altrincham.**—Pultra, Ltd., 2, Dawson-rd., Broadheath, propose engineering works adjoining Bridgewater Canal, off Davenport-rd., Broadheath.

**Banbury.**—Governors of Horton General Hospital propose to convert adjacent premises as annexe. Plans by F. E. Openshaw (A.), 149, Woodstock-rd., Oxford.

**Batley.**—T.C. propose omnibus station off Commercial-st. and Bradford-rd.

**Bexhill-on-Sea.**—Longley Bros. to extend departmental stores at Devonshire-rd. Plans by J. E. Maynard, F.S.I., 1, Collington-ave., Bexhill.

**Bingley.**—U.D.C. approved:—Infants' school and nursery at Cottingley estate for West Riding E.C.

**Blackburn.**—E.C. propose Primary Junior school at Longshaw.

**Cannock.**—R.D.C. propose developing 10½ acres of land for houses at Deansfield, Brewood.

**Chesterfield.**—Lamp Caps, Ltd., propose extensions to works at Sheffield-rd.—E.C. propose repairs at Heath Senior school at £12,000; extensions at William Rhodes Senior school at £25,000. Wilcockson & Cutts, architects, 12, Saltergate.—T.C. propose Central Library and Museum and Art Gallery at £90,000.

**Chorley.**—Parochial Council of Parish Church propose improvements to church buildings at £6,000.

**Coventry.**—E.C. approved Primary school in administrative block of Charter Hostel at £6,390.

**Daventry.**—T.C. propose 78 additional houses of Duplex and traditional types.

**Doncaster.**—R.C. Authorities propose Catholic Church at Parkway, South Wheatley.—E.C. propose Primary school at Wheatley estate.—T.C. propose developing 120 acres of land off Catley-la. and St. Wilfrid's-rd. for housing estate.

**Dover.**—T.C. approved plans for rebuilding sanitary accommodation, mess rooms and switch rooms at Northwall Quay for Eastwood, Ltd. Also amended plans for conversion of 13, 14 and 15, Waterloo-cres. into an hotel for Harbour Board.

**Eastbourne.**—Star Brewery Co., Ltd., to erect new premises at Gas Works-rd. at £3,000. Plans by Hugh C. Ford (F.), 7, Gildredge-rd., Eastbourne.

**Eastbourne.**—Plans for ice-cream factory at Lottbridge-dr., at £4,400, for Creamice, Ltd., prepared by Peter D. Stonham & Son, 41, Gildredge-rd., Eastbourne.

**Exeter.**—Reconstruction of St. James's Chapel, Exeter Cathedral, to be carried out as Devon war memorial. The architects are W. Godfrey Allen (F.), Surveyor's Office, St. Paul's Cathedral, E.C.4, and H. M. R. Drury (F.), Church House, The Close, Exeter.

**Gainsborough.**—Lincs C.C. (Lindsey Div.) propose Junior, Primary and Secondary schools.


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**Gateshead.**—E.C. propose school at Lobley Hill at £60,000.

**Guildford.**—Messenger, Morgan & May, High-st., Guildford, prepared layout plans for development of 11 acres at Downside-rd. for Earl of Onslow.

**Halesowen.**—W. Slater, Halesowen-rd., Cakemore, propose extensions to factory at Halesowen-rd.

**Ilkley.**—Milk Marketing Board, London, propose cattle breeding station.

**Keighley.** — T.C. approved: — Garages and dwellings at Dalton-la. for Colonial Combing Co.; carpet cleaning works and garage at Luton-st. for Keighley and District Laundries.

**Kingston-on-Thames.**—Plans prepared by Clough, Son & Partners, 115, Park-st., W.1, for multi-storey block of 117 flats at Kingston Hill.

**Lancaster.**—Lancs Mental Hospital Board propose modernisation of services at mental hospital at £47,000.

**Leicester.**—E.C. propose adapting buildings at Newarke-st. for Technical College and School of Art at £36,000.

**Manchester.**—T.C. approved:—190 houses and 20 bungalows, S.W. Neighbourhood Unit, at Baguley for Housing Committee; boys' club at Derby-st., Strangeways, for Salford Housing, Ltd., 4, Chapel-walks; additions to works, Slacks-rd., Crumpsall, and to works, Delaunay's-rd., Crumpsall, for Imperial Chemical Industries, Ltd., Hexagon House, Blackley; garage for motor coaches at Church-st. and Lytham-st., Newton Heath, for A. Whittaker; additions and alterations to clothing factory, Bengal-st. and Union-st., Ancoats, for London Waterproof Co. (Silkimac), Ltd.; factory at Rusholme-rd. and William-st., Chorlton-upon-Medlock, for Fern's Manufacturing Co., Ltd., P. Cummings (F.), architect, 16, Oxford-st.; furniture showrooms at Mosley-st. for Hilton's, Ltd.—E.C. propose extensions at North Manchester High School for Boys, Moston, at £7,785.

**Midhurst.**—West Sussex C.C. to erect Secondary Modern school at £150,900. Plans by F. R. Steele, County A., County Hall, Chirhester.

**Newcastle-on-Tyne.** — Improvements costing £10,000 are planned at the City Hospital for Infectious Diseases for the City Council.

**Northumberland.**—C.C. to build dining-room and kitchen adjoining Dunstan C.E. school.

**Ogwen.**—R.D.C. propose 120 "Airey" type rural houses on selected sites.

**Pendlebury.**—Chloride Electrical Storage Co., Ltd., Exide Works, Clifton Junction, propose reconstruction of Exide Works.

**Penrith.**—Milk Marketing Board, London, propose cattle breeding station.

**Peterborough.**—Plans prepared by Ruddle & Wilkinson, Long Causeway-chbrs., Peterborough, for alterations and additions at Bull hotel, Westgate.

**Plymouth.**—Hoare, Lea & Partners, 39, Broad-st., Bristol, prepared district heating scheme for Ernesettle estate for B.C.

**Preston.** — R.C. Authorities propose six Secondary schools.

**Reading.**—Julian's of Reading, Ltd., propose to extend garage and showrooms at King's-rd. Plans by Howell, Freeman & Batten, 17, Blagrave-st., Reading.

**Romford.**—British Legion Haig Homes' Trustees propose 8 houses. Plans by L. C. Powell (F.), Station-rd., Chesham, Bucks.

**Salford.**—T.C. approved:—Extensions to works at Calder-st. for Gresham & Craven, Ltd.; additions to sugar mills at Weaste-rd. South, for Burton, Son & Sanders, Ltd.

**Scunthorpe.**—T.C. to develop 15 acres of land at Malvern-rd., Old Brumby, for houses.—Lincolnshire C.C. (Lindsey Div.) propose Junior school at Ferry-rd., Crosby.—Three schools on land between Kingsway and West Common-la. County College on site adjoining.

**South Shields.**—E.C. received approval to erect Primary school at Horsley Hill at £71,700.

**South Shields.**—Jarrow & Hebburn Co-op. Society to build model dairy and bakery at £80,000. Plans by Architects' Dept., 90, Westmoreland-rd., Newcastle.

**Staffs.**—E.C. propose 163 Primary and Secondary schools and 65 nursery schools on approved sites at £23,000,000.

**Stalybridge.**—T.C. to develop 16 acres of land at Huddersleid-rd. for housing estate.

**Stockport.**—Pickering & Co. (Cereals), Ltd., Denton, propose factory and warehouse at Victoria Mill, Broadstone Hall-rd., South Reddish; William Sheargold & Sons (Stockport), Ltd., 2, Princes-st., propose piano workshop and warehouse at Portwood-pl., Tiviot Dale.—E.C. propose kitchen for school meals at Heathfield, Cale Green.

**Stockton-on-Tees.**—T.C. to erect two nursery schools at Darlington-la. area at £16,000. Plans by B.A.

**Stone.**—Scottie, Ltd., propose factory off York-st.—U.D.C. propose houses at Walton and 82 at Brookside-dr., Barlaston.

**Wallsend.**—Amended plans approved for foundry and garage nr. Oak-gr. for R. N. Dodds & Sons (architects, J. H. Morton & Sons, Westgate-rd., Newcastle-on-Tyne).

**Warrington.** — T.C. approved: — Extensions, workshops and stores at Mersey Mills for C.F.A. Mersey Mills, Ltd.; shops and flats at Gough-ave., Warrington, for Co-operative

Society, Ltd.; extensions to works at Bridgewater-st. for Fleming Ropes and Twines (Grappenhall), Ltd.

**Wellington (Salop).**—Salop E.C. propose school at Barn Farm estate.

**West Hartlepool.**—E.C. proposes alterations and modernisation of Seaton Carew C.E. school.

**Wilmslow.**—U.D.C. approved proposals for erection of laboratories at Hough area for Imperial Chemicals (Pharmaceuticals), Ltd.

**Worthing.**—Plans by M. Rainsford Fletcher & Partners, 13, Ambrose-pl., Worthing, for block of 22 flats and 6 garages at Parkfield-rd. and Ethelwulf-rd.

## TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*

**Altrincham.**—Structural alterations at Infectious Diseases Hospital, for conversion to maternity unit, for T.C. F. H. Brazier (F.), architect, 7, Market-st.: *Direct Labour Dept., Altrincham Corporation (E. S. Hodgson, B.S.), £5,635.

**Ashton-under-Lyne.**—Dining-room and kitchen at Grammar School, for Lancs E.C. G. Noel Hill (F.), County A., County Offices, Fishergate-hill, Preston: *P. Hamer, Ltd., 14, Park-st., Swinton, Manchester.

**Bakewell.**—10 houses at Tideswell, for R.D.C. R. Hayhurst, S.: *F. H. Hill, Tideswell, nr. Buxton, £12,285 (revised tender).

**Bamber Bridge, Lancs.**—Office buildings at Mounsey-rd., for Ministry of National Insurance: * John Tomlinson, Towngate Saw Mills, Leyland, Lancs.

**Barking.**—Rebuilding houses at 186-196, Longbridge-rd. Henry Dawson & Son, architects, 34, Ludgate-hill, E.C.4: *A. G. Scott, Ltd., 1, Creed-la., E.C.4.

**Bath.**—8 bungalows at Twerton estate, for T.C.: *Howell Bros., £6,493; 4 bungalows at Twerton estate: *Ashman & Bailey, £3,240.

**Blackburn.**—54 houses at Higher Croft site, for T.C. W. Pickstone, B.E.: *Leyland Construction Co., Ltd., Leyland, nr. Preston (revised tender).

**Boston.**—Further 30 Wates houses at King-st., Kirton, for R.D.C.: *Calverley & Sons, Ltd., Leicester, £39,180.

**Bristol.**—Provision of office building at Bathurst Shed, for Port of Bristol Authority. W. P. Wordsworth, Chief Engineer, Chief Engineer's Office, Avonmouth Docks, Bristol: *C. A. Hayes & Sons, Ltd., Stork House, Hotwells, Bristol 8.

**Buckfastleigh.**—40 Cornish Unit houses, for U.D.C.: *Sellick Nicholls & Co., Ltd., St. Austell, £51,180.

**Cardiff.**—Works for City Council: 40 permanent aluminium bungalows at Gabalfa 2 and 4 sites: *Hawksley, Ltd., Gloucester; electricity sub-stations at North Clive-st. and Cowbridge-rd.: *B. G. Cook & Co., £669 and *Direct Labour, £7,960, respectively.

**Cheadle, Staffs.**—Conversion of camp at Woodhead into dwellings, for R.D.C. J. W. Burton, S.: *S. W. Salt, Buxton-st., Sneyd Green, Stoke-on-Trent, £6,146.

**Chigwell.**—Erection of Grange Hill County Primary school, for Essex C.C.: *Gilbert Ash, Ltd., Stanhope-gate, W.1, £104,250.

**Clitheroe.**—Houses for R.D.C. Six at Hurst Green: †R. J. Barton & Sons, Ltd., Liverpool, £8,341; eight Airey at Chatburn: †F. Liptrot, Galgate, £11,352; 24 Airey at Whalley: †Leonard Frankland (Contractors), Ltd., Church, £33,085.

**Croxley Green.**—Junior school at Little Green-la., for Herts C.C. C. H. Aslin (F.), C.A.: *C. Miskin & Sons, Ltd., Romelands, St. Albans.

**Filey.**—19 houses and 12 bungalows at Corrigan's Field site, for U.D.C. C. J. Williams, S.: *Tarran Building Industries, Ltd., Cloughrd., Hull, £30,346.

**Finsbury.**—Basement and ground floor of large multi-storey factory at 48-59, Bunhill-row, and 1-10, Featherstone-st., E.C.1. G. G. Wimbourne, architect, 214, Bishopsgate, E.C.2: *Trussed Concrete Steel Co., Ltd., 6, Collingham-gdns., South Kensington, S.W.

**Glasgow.**—Extensions to double-storey shed at Lancefield Quay, for Clyde Navigation Trust: *William Baird & Son, Ltd., £49,568.

**Golders Green.**—Rebuilding houses at 145-155, Wentworth-rd. Atherton & Brenchley (AA.), architects, 36 Paddington-st., W.1; *Comben & Wakeling, Ltd., 603, Kenton-rd., Kenton, Harrow, Middx.

**Isle of Axholme.**—28 Airey rural houses at Haxey & Belton, for R.D.C. J. T. Battye, S.: *R. Hill, Market-pl. (10); *Sun Engineering (Crowle), Ltd., High-st. (6); *C. Brown (6); *A. & C. Kelsey (6); (all of Crowle, nr. Doncaster).

**Knighton.**—Houses at Llangunllo and Dolau, for R.D.C. S. N. Shrimpton & Son, architects, Knighton: ‡T. Richards & Sons, West-st., Knighton, Rads.

**London.**—Reconstruction of 55, Fleet-st. into office accommodation. Bernard Gold & Partners, architects, 4, Grosvenor-st., W.1: *C. E. Wilkinson, Ltd., 49, Marloes-rd., Kensington, W.8. Licence granted (estimated cost, £3,000).

**London.**—Reconstruction of "C2" and "C3" warehouses, Wapping, E.1, for Weber, Smith & Hoare, Ltd., wharfingers, 7, Mincing-la., E.C. Stock, Page & Stock, architects, 18, St. Thomas's-st., London Bridge, E.C.: *Mansfield & Neil, Ltd., 136, Minories, E.C.3.

**¶London (Admiralty).**—*Evanton*, R.N. Air Station, External and internal painting to steel sheeting of hangars, Shopfronts (Gt. Britain), Ltd., Cromwell-st., Glasgow; widening and maintenance of road and runway surfaces, W. Tawse, Ltd., Aberdeen. *Portsmouth*, H.M. Dockyard. Reinstatement of glazed roofs, Way & Son (Southsea), Ltd., 55, Grosvenor-st., Southsea, Hants. *Fareham*, H.M.S. "Collingwood." Pitchmastic flooring, Ragusa Asphalte Paving Co., Ltd., 25, Oxford-st., W.1. *Gosport*, H.M.S. "St. George," Resurfacing parade grounds, All-weather Mechanical Grouting Co., Ltd., 47, Victoria-st., S.W.1. *Portsmouth*, H.M. Dockyard, Resurfacing of roads, Taylor Kent, Ltd., Weydown-rd., Haslemere, Surrey. *Portsmouth*, H.M.S. "Vernon," Construction of concrete boat steps and repairs to jetty, A. E. Farr, Ltd., Station-rd., Westbury, Wilts.

**¶London (Air Ministry).**—Contracts to value of £500 or over for week ended October 11:—Painting work: Alfred Bagnall & Sons, Ltd., Bristol 3; Fields, Ltd., Reading, Berks; George Jones & Son, Liverpool 6; J. & B. Abbott (Contractors), Ltd., Harrow, Middlesex; Haymills (Contractors), Ltd., Ipswich; J. H. Metcalf Bros., Doncaster, Yorks; Arundel (Contractors), Ltd., Bradford, Yorks; G.H.L. (Painters), Ltd., Dudley, Worcs. Building work: J. Gerrard & Sons, Ltd., Swinton, Manchester; Thomas Lowe & Sons, Ltd., London, W.6. Heating and hot water installation: Maddock & Wright, Leicester. Dismantling and re-erecting structural steelwork: N. S. Bellman & Co., Ltd., London, S.W.1. Drainage work: Le Grand Sutcliffe & Gell, Ltd., Southall, Middx.

**¶London (M.O.W.).**—Contracts placed by M.O.W. for week ending October 9:—*London*: Queen Mary's Hospital, Roehampton, alteration to underground plastic surgery, Styles, Ltd., 67, Victoria-dr., S.W.19. *Ayrshire*: M.N. Insurance, Irvine, office buildings, Wright & James, Ltd., 52, Portland-st., Troon, Ayrshire; Burnpark, Kilmarnock, Tarran houses, James Barclay, West England-rd., Kilmarnock. *Berks*: Wytham Botley C. School, dining-room and scullery, T. H. Kingerlee & Son, 35a, Queen's-st., Oxford; Alfred Sutton School, Reading, dining-room and kitchen, Boyd & Murley, 87, London-st., Reading; Whitley Park C. School, dining-room and kitchen, H. & R. Davey, Wokingham-rd., Earley, Reading; A.E.R.E., Harwell, overhead runways, Vaughan Crane & Co., Oppenshaw, Manchester; School, Hungerford, temporary school buildings, A. J. Dunning & Son, Weyhill, Andover, Hants. *Buckingham*: C.F.U., Beaconsfield, main stage switchboard, Crompton Parkinson, Aston House, Aldwych, W.C. *Cambs.*: Brunswick C. School, Cambridge, kitchen and dining-room, Rattee & Kett, 1, Station-rd., Cambridge. *Carmarthen*: Abergwili School, kitchen and dining-room, D. G. Lewis, 34a, Priory-st., Carmarthen. *Ches.*: Upton Reade Site, Wallasey, school kitchen and dining-room, John H. Waring, 289, Hoylake-rd., Moreton, Wirral. *Cumberland*: R.O.F., Sellafield, mild steel reinforcement rods, Whitehead Iron & Steel Co., Tothill-st., S.W.1. *Devonshire*: C. School, Broadey-st., Exeter, temporary school buildings, F. A. Bridges & Son, 26, Commercial-rd., Exeter; Telephone Exchange, Plymstock, additions and alterations, Griggs & Son, 12, Grimstone-terr., Plymouth. *Dumfriesshire*: Kirkconnell, Tarran houses, Findlay & Son (Bldrs.), Harwood-pl., Mauchline, Ayr. *Essex*: Ardleigh C.P. School, Hornchurch, kitchen and dining-room, E. A. Coryn & Son, Haynes Park, Hornchurch, Essex; T.O.B., Beeches-rd., Chelmsford, installing hot water and heating system, Watkin Heating Co., 15, Baddow-rd., Chelmsford, Essex. *Fifeshire*: Hill of Bleath, Arcon houses, John Best, Ltd., Warriston House, Edinburgh. *Hants*: O.S.O., Crabwood, Southampton, alterations and extensions, Truckell & Barter, Salisbury-rd., Totton, Southampton; Lock's Heath C. School, Fareham, kitchen and dining-room, Hamper & Co., 42a, Hartlands-rd., Fareham, Hants; Forestry Commission, Bartley, pair of houses, J. Payne, Emery Down, Lyndhurst, Hants; R.A.E., Farnborough, blower tunnel, Snelling & Rayment, 262, Streatham-rd., S.W.16; C.P. School, Poole-la., Kinson, Bournemouth, kitchen and dining-room, W. Hayward & Son, 400b, Holdenhurst-rd., Bournemouth; C. of E. School, Alverstoke, Gosport, temporary school buildings, Hamper & Co., 42a, Hartland-rd., Fareham. *Kent*: Eastry R.D.C., aluminium houses, Ringmer Building Works, Lewes, Sussex. *Lanarkshire*: M.N.I., Partick, Glasgow, office buildings, Hugh Broadley, 8, Gournock-st., Glasgow, C.5; Meadowhead-rd., Craigmeuk, Motherwell, Tarran houses, McLean & Co., 73, Glasgow-rd., Wishaw. *Lancs*: Kearsley U.D.C.1, aluminium houses, P. Fairclough, Clive-st. Sawmills, Bolton; Maulden-rd. Municipal School, Withington, kitchen and dining-room, J. & J. Parfsh, Burton-rd., Withington; Scott-la., Wigan, central kitchen, J. H. Bullough, Gordon-st., Chorley; St. Sebastian R.C. School, Fairfield, Liverpool, hutted accommodation, W. L. Cleaver, 39, Village-st., Everton, Liverpool 6; St. Mark's R.C. School, Swinton, hutted accommodation, W. Fearnley & Son, Constance Works, Salford 5; M P., Orleans House, Liverpool, alterations, Humphreys, Ltd., H22, Exchange-bldgs., Liverpool 2. *Lincs*: C. of E. School, Stickney, temporary school buildings, W. Greetham & Son, 114, Drummond-rd., Skegness, Lincs; M/A., The Grange, Riseholme, decorations, W. & J. Simons, Friars-la., Lincoln; M.A., The Hall, Riseholme, decorations, W. & J. Simons, Friars-la., Lincoln; Senior C. School, Market Rasen, temporary school buildings, S. Cartledge & Son, Weelsby-st., Grimsby. *Middx.*: T.O.B., Canons Park, installation of gas system, Mathew Hall, 25, Dorset-sq., N.W.1; T.O.B., Canons Park, installation of electric system, Read & Partners, 28, Hatfields, Stamford Bridge, S.E.1; N.P.L., Teddington, staff hut, Kenman Construction Co., 21, Hamworth-rd., Feltham, Middx. *Norfolk*: Shipdham Primary School, kitchen and dining-room, Walter Lawrence & Son, Ventnor House, London-st., Swaffham. *Perthshire*: Health Hospital, Bridge of Earn, painting, G. R. Douglas & Son, 52, Princess-st., Perth. *Renfrewshire*: Gockston, Paisley, aluminium houses, Whatlings, Ltd., 11, Woodside-cres., Charing Cross, Glasgow. *Shropshire*: Council School, Wrockwardine-rd., Oakengate, kitchen and dining-room, John McLean, Ltd., Covan, Wolverhampton. *Staffs*: Sedgley, U.D.C.2, aluminium houses, Natham Hyde, 6, Claremount-rd., Sedgley, Dudley. *Stirling*: Seabegs, Bonnybridge, Tarran houses, Wm. Sprunt & Co., Inverallan-rd., Bridge of Arran. *Surrey*: T.O.B., Manor-rd., Hinchley Wood, installation of hot water system, Mathew Hall, 26, Dorset-sq., N.W.1. *Sussex*: St. Ann's-rd. Grammar School, Eastbourne, kitchen and dining-room, Y. Lovell & Son, 10, Gildredge-rd., Eastbourne; Primary School, Lyndhurst-rd., Worthing, kitchen and dining-room, Patching & Co., Warwick-st., Worthing. *Wilts*: 14, Radloe Estate, Hawthorn, installation of hot water system, G. Carey & Son, Station Works, Lower Bristol-rd., Bath. *Yorks*: Hemsworth R.D.C. (4), temporary houses, Quibell & Son, Bentley-rd., Doncaster.

**¶London (War Dept).**—Works contracts placed by War Dept. for week ended October 4:—*Yorks*: Building work, S. Owst & Son, Hull. *Essex*: Miscellaneous work, S. Cronin & Sons, Warley; E. A. Coryn & Son, Hornchurch. *London, S.E.18*: Roof repairs, J. Alfred Pratt & Co. (1928), Ltd., Watford. *Devon*: Floor repairs, H. E. Hansford, Honiton. *Dorset*: Roadwork, W. G. Northcott & Co., Salisbury.

**Merioneth.**—Erection of temporary pre-fab. huts for use as offices at Penarlag, Dolgelley, for C.C.: *Merioneth Building and Estate Co., Ltd., Plas Deon, Llanuwchllyn (estimated cost, £6,000).

**Merton.**—Factory, stores, etc., for J. & S. Bickley, Ltd., Bickler House, Merton, S.W.19. Henry W. Binns (F.), architect, 19, Southampton-pl., W.C.1. Ralph A. Smith & Partners, quantity surveyors, 5, Bloomsbury-sq., W.C.1: *William Hamilton & Co., (Civil Engineers),

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**Newcastle-on-Tyne.**—Alterations to low-grade block "G" at Shotley Bridge Hospital, for City Council. Plans by City A., 18, Cloth-market, Newcastle: *Stoddarts (Builders), Ltd., Rowlands Gill, Co. Durham.

**Northolt.**—Repairs to "Plough" public-house. Nowell Parr & Son, architects, 97, Old Bromp-ton-rd., South Kensington, S.W.: *Joseph Dorey & Co., Ltd., Brentford, Middx.

**Oxhey.**—Infants' school and Junior school, for Herts C.C. C. H. Aslin (F.), C.A.: *Holland & Hannen and Cubitts, Ltd., 1, Queen Anne's-gate, S.W.1.

**Penryn.**—(a) 17 houses; (b) roads and sewers at Saracen estate, for T.C. Cowell Drewin & Wheatley, Penzance, architects. Quantities by Turner & Ing, Plymouth: *Penryn Builders, Ltd., Islington Wharf, Penryn, roads and sewers, £2,918; houses, £2,274 per pair.

**Plymouth.**—Erection of (1) South Crownhill Primary school; and (2) West Efford Primary school, for E.C. E. G. Catchpole (F.), architect, Weston Lodge, Seymour-rd., Plymouth: (1) *A. N. Coles (Contractors), Ltd., Sutton-rd., Plymouth (cost, £97,500); (2) *Pearn Bros., Ltd., Radnor-villas, Plymouth (cost, £75,000).

**Portrush.**—28 houses for U.D.C.: ‡W. & J. Taggart, Portrush.

**Rugby.**—Six houses at Bretford, for R.D.C.: *J. E. Lovatt, Rugby-rd., Binley, £7,416 (subject to M.H. approval).

**Skipton.**—Ten houses at Park-av. site, Sutton, for R.D.C.: *Walter Smith, Bingley (subject to M.H. approval).

**Stockport.**—Extensions to works at Bird Hall-la., Cheadle Heath, for British Driver, Harris & Co., Ltd. A. R. Walsingham (L.), architect, 50, High Grove-rd., Cheadle, Ches. Builders: *W. Thorpe & Son, Ltd., Chester-rd., Cornbrook; steelwork: *Edward Wood & Co., Ltd., Ocean Ironworks, Trafford Park (both of Manchester).

**Stratford.**—Large extension to factory, for Jensen & Nicholson, Ltd. Ley, Colbeck & Partners, architects, Palmerston House, Bishopsgate, E.C.2: *A. E. Symes, Ltd., 1a, Carpenters-rd., Stratford, E.15.

**Stretford.**—Offices, garages and works canteen at Textilose-rd., Trafford Park, for Courtaulds, Ltd.: *D. Walton & Co., Ltd., Clarendon-rd., Cross-la., Salford 5.

**Stretford.**—Fitting workshop, stores and works canteen at Trafford Power Station, Trafford Park-rd., for Stretford & District Electricity Board. C. S. Allott & Son, Civil Engineers, 1, North-parade, Parsonage, Manchester 3: *J. Gerrard & Sons, Ltd., Pendlebury-rd., Swinton, Manchester.

**Tynemouth.**—Two shops with flats above at Moor Park, for T.C.: *M. J. Liddell & Son, Hunters-rd., Gosforth, £4,450.

**Wallsend.**—20 houses at Westmorland estate, for T.C.: *D. Oates, *N. Willis and *A. Weir (all of Wallsend).

**Warrington.**—12 houses at Poplars-av., for T.C. J. Y. Hughes, B.S.: *C. H. Osborne & Co. (Warrington), Ltd., Thelwall New-rd., Grappenhall, £13,248.

**Wembley.**—Extension to factory at Abbeydale-rd., for Lightfoot Refrigeration Co., Ltd. Swannell & Templeman (E/A.), 6, Raymond-bldgs., W.C.1: *Allnatt (London), Ltd., Park Royal-rd., N.W.10.

**Westmeath.**—58 houses at Green-rd., Mullinger, for C.C.: †M. Kelly & Sons, Mullinger, £90,566.

**Wigan.**—Extensions at Pagefields Ironworks, for Walker Bros. (Wigan), Ltd. Norman Jones, Son & Rigby (FF.), architects, William Deacon's Bank-bldgs., 271, Lord-st., Southport. Builders: *A. Wigan & Son, Ltd., Manchester-rd., Ince, nr. Wigan; steelwork: *Lowton Engineering Co., Lowton, nr. Leigh.

**Windsor.**—Four dwellings for aged people at Brockenhurst-rd., South Ascot, for R.D.C.: *E. C. Hughes, Ltd., Wiltshire-rd., Wokingham, £3,288.


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